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the most varying neoplasms, and not only develop themselves out of the elements of other tissue cells, but also form epithelial cells, muscle fibres, capillaries, and the endothelium of veins (Virchow's Archiv., vol. 14, p. 51). Ziegler* considers the giant cells as altered colorless blood corpuscles. Rindfleisch † thought they originated from epithelial cells. Brodowsky ‡ considered them to be germ cells from capillaries. Schüppel and Visconti § held the opinion that they developed from blood vessels. Klebs, Kōster, Langhaus and Hering || viewed the giant cells as transverse sections of capillaries and lymph vessels. According to Weyss, the giant cells take their origin in a confluence of granulation cells. I have never been able to see the formation of giant cells by the degeneration of blood-corpuscles, nor from the germ cells of capillaries. I have observed bodies resembling giant cells in the nodule (perlknoten) of the pleura and lungs, but upon examining them more closely, they appeared to be changed blood vessels; not only was their connection with the blood vessels visible, but there was also a quantity of round and oval elements at their borders, which was nothing more than a proliferated condition of the capillary epithelium, and that the fine fibrous or granular masses in the centre of these formations were nothing more than coagulated fibrine. Besides these bodies, genuine giant cells were visible in the nodule (perlknoten) of the pleura, lungs and mammary gland. I perceived round oval connective tissue elements, having a large nucleus; also, somewhat larger stellate cells, containing 2 or 3 nuclei, together with giant cells; and I am inclined to consider the two first as stages of development of giant cells.

I have also found the mammary gland of animals slaughtered on account of perlsucht, to present exactly the same histological construction as that which Virchow found in the pleura, lungs and lymph glands of cows affected with perlsucht, and which he described as lymphosarcoma.

This investigation led me to the conclusion that lymphosarcomatose nodules can develop themselves as metastases in the mammary gland of

* Ziegler. Experimentelle untersuchungen über die Herkunft, der Tuberclie Elemente mit Cesondere Berücksichtigung der Histologenie der Reisenzellen. Würzburg.

† Rindfleisch. Lehrbuch der pathologischen Gewebelehre, 1875.

‡ Brodowsky. Virchow's Archiv., vol. 63.

§ Visconti. Sulla origine della cellule gigantesche del sarcoma giganto-cellulare del tubercoli e delle ossa. Milans, 1875.

|| Klebs: Virchow's Archiv., vol. 44, p. 286. Koster: Virchow's Archiv., vol. 48, p. 95. Langhaus: Virchow's Archiv., vol. 42, p. 382. Hering: Histologische und experimentelle studien über Tuberculose. Berlin, 1873. P. 105.

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animals suffering from perlsucht, and that perlsucht is not identical with tuberculosis.

CATARRH OF THE LACTEAL DUCTS AND CHRONIC INTERSTITIAL MASTITIS:—FIVE CASES.

The animals were of various ages between eight and ten years.

From dissection one found nodules (perlknöten), from the size of a pea to that of a hazel-nut, upon the pleura and in the bronchial glands.

There was a great quantity of a dense pus-like fluid discharged from the sinus lactiferi through the medium of the teat. From a microscopical investigation of this fluid, I found a considerable number of small cells containing a single large, or several small nuclei; also, occasionally, epithelial cells from the alveolæ and excretory ducts having 2 to 3 nuclei. In some cases it discharged from the excretory ducts in a flocculent mass, in which I also detected round cells of the above described character. Here and there the excretory ducts are obstructed by a caseous mass, the greater part of which is composed of contracted granular cells, about the size of blood corpuscles, densely packed together. Between these cells we also found round elements having a large nucleus and sharp contours. The mucosa of the sinus lactiferi and larger lacteal ducts are thickened. A superficial section is very compact, showing that the interstitial tissue is very much developed; here and there we find cysts, varying in size from a pea to a man's fist, which contains a caseous product. From this pulpy mass the microscope revealed small round cells with large single nuclei, and in the caseous mass shriveled pus-cells. In two cases only one gland was affected; in another both were affected in a manner described.

Prof. Virchow recommended me to examine how far the catarrhal process extended, and whether the pus-cells originated from the catarrhal inflammation of mammary gland.

In order to answer these questions, I investigated in these cases preparations which were prepared upon the method above described. I found in the interstitial tissue of the mammary gland connective tissue in a hyperplastic condition, and the connective tissue infiltrated with round granulation cells. The interlobular as well as the interalveolar connective tissues had attained a threefold thickness. The excretory ducts were varicosely dilated, and their lumen obstructed with round elements from 0.003–0.006 m.m. in size containing a single large, or several small nuclei. It is only here and there that the membrana propria is in such a high degree of proliferation that it cannot be dis-

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tinguished from the interstitial tissue infiltrated and surrounded with round cells. I seldom found the excretory ducts in an early stage of catarrhal inflammation ; here the subepithelial cells (germ cells) were proliferated and stratified, so much so that the cylindrical epithelium were either between them or above them (the proliferation cells), and, therefore, removed to a far greater distance from the membrana propria than under normal conditions.

In the isolated epithelial cells lying between the layers of round cells, as well as in the groups of epithelial cells above the round elements, we found "trübe schwelling" (clouded swelling). The lumen of the lacteal ducts, free from catarrhal affection is often found obstructed with round elements, the origin of which is to be sought in the surrounding parts affected with catarrhal inflammation.

The alveolæ also presented different states of the catarrhal processes. In the subepithelial layer (germ stratum) we found an extensive hyperplasia, whilst the membrana propria was normal and distinctly perceptible.

The lumen of the alveolæ was obstructed partly by an accumulation of round cells amongst which were scattered clouded epithelial cells, and partly by fine granular epithelial cells, and by several strata of round cells forced from the membrana propria, in consequence of which they occupy the centre of the lumen. Seldom the reverse took place, the lumen of some alveolæ were filled with round cells, whilst the epithelium remained quite normal, and not detached from the membrana propria as mentioned in the above cases. The question now presented itself, what caused the accumulation of round elements (pus-cells) in the lumen of the excretory ducts and alveolæ ? Virchow, Föster and Rindfleisch examined two forms of suppurative inflammation, viz., one only superficial (epithelial) in which the inflammation attacked principally the epithelial layer, the other deeper (parenchymatous) which together with the deeper tissue layers presented an inflammatory appearance, as the stratum mucosum et submucosum and so forth. Remark, Buhl and Eberth were of opinion that upon the epithelium pus-cells originated in an endogenous manner. Cohnheim showed that blood was necessary for the formation of pus, since he proved that under certain conditions colorless blood-corpuscles exuded from the capillaries, and in this manner furnished the material for the pus.

From the above patho-anatomical changes in our cases, the pus-cells originated from the epithelial cells (germ cells) being in a state of proliferation, for we neither found changes in the membrana propria,

nor in the interstitial tissues surrounding it, nor in the polygonal and cylindrical gland cells, which justifies us to consider these tissues as the place of suppurative origin.

Up to the present time there has not been, as far as I know, any histological examinations of the mamma of the cow* during inflammation, and the condition of mastitis of the human subject are very little understood, as is proved by the following words of Rindfleisch :† "The histology of mastitis is as good as unknown. We must content ourselves with the conceptions we have won from inflammatory processes on similarly constructed glands, such as the salivaries to the mammary gland, and thereby explain the various phenomena of mastitis."

Fürstenberg, Ackermann † and others have only described inflammation of the cow's mamma (mamitis) microscopically. Ackermann's opinion was that cows suffering from perlsucht was of a tuberculous nature. It is little understood that catarrh of the lacteal ducts and interstitial mastitis have nothing in common with perlsucht, and that the same does not happen to cows affected with perlsucht only as an accessory complication. The mammary gland of the cow (particularly during the period of lactation) is far more subject to inflammation than other organs, the latter, therefore, occurs extraordinarily frequent by animals free from perlsucht. We can find, therefore, no cogent reason to assign to such processes a tuberculous character. With this observation we do not dispute that a mammary gland affected with catarrh forms a fruitful ground for the development of disease in other organs from metastasis; we have already mentioned that we found in our first case lymphosarcomatose nodules in the inflamed mammary gland.

* We (as veterinary surgeons), ought to examine our cases histologically, and so be in a position to enlighten the sister profession by our investigations.

† Rindfleisch. Lehrbuch der pathologischen Gewebelehre, 1875, p. 478.

‡ Ackermann. Jahresbericht f. Jahr, 1875, p. 643.

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EDITORIAL.

VETERINARY SCIENCE.

A communication from the Agricultural Department in Washington has recently been directed to many veterinarians in different parts of the country. It states that "desirous to make investigation into the causes of diseases of farm animals, statistics of symptoms, remedies and prevention in all the different classes of animals, would be kindly received at the department." The object of this information being to lay it before Congress to obtain an appropriation for such investigation. When we first read this notice, it seemed to us that there was in its spirit something which indicated that at last the Agricultural Department was becoming aware of the importance of veterinary medicine, and that the day had come when that essential branch of agriculture was about to receive its full appreciation at the hands of our honored Acting Commissioner. This, no doubt, might have been a correct impression, as, so far as we knew, it was the first time that veterinarians all over the country were called upon to give their opinion on a subject where the whole community was interested. True, Prof. Gamgee had been appointed by the general government to investigate the disease known as Texas fever, but that was a personal appointment; in no other case had a large number of veterinarians been asked to give their opinion or the result of their observation. This communication is, therefore, a fact worth noticing in the history and in the advancement of veterinary science in America.

On second thought, we asked ourselves, of what good would it be to carry on these investigations? Are not veterinarians well acquainted to-day with the history, symptoms, etiology, pathology, and treatment, curative and preventive, of most all the diseases to which our farm animals are subject? Are not pleuro-pneumonia, foot and mouth disease, anthrax, glanders, tuberculosis, etc., etc., well known to all of us? The literature of France, Germany, and of England, also, is well provided with excellent works giving upon these diseases all the scientific information which is necessary to protect us from their fatal influence, and, we repeat it, what can we gain from these investigations? Of what benefit will they be to the general public?

But let us suppose a moment that they would be useful; let us

admit that the spending of several thousand dollars would be advantageous as far as the knowledge of these diseases goes, would not the Agricultural Department find itself, probably from the start, in great difficulty, if not impossibility, in carrying out its views, from the fact of the few who by their knowledge, their education, their professional ability, or their habits, would be the proper persons fitted to carry these investigations to a satisfactory and, above all, to a beneficiary result. Veterinarians, in the true sense of the word, are only few yet in America, and we know, by European experience, that they are the ones who ought to have charge of these special studies. We know well enough that physicians do not possess by their former education the qualifications which are so essential for success, and which, on the contrary, are found in all veterinarians; and from the beginning, what might be called a Sanitary Veterinary Commission fails to be established by the want of competent workers.

Still, it is the idea, it is the meaning of the communication. Yes, we need a Sanitary Veterinary Department, with its headquarters at Washington, in the rooms of the Agricultural Department. Veterinary science has its full recognition, its full work in all the departments of agriculture, why should we be behind the European governments in benefiting of this essential branch? Let us fully impress our Acting Commissioner that he is right, that *we*, all men who have given as our life's work the duty of looking over the interests of *all*, over the *wealth of our land*, over the *health of our countrymen* by taking care of domestic animals in their state of sickness, that we all approve of his new departure, and congratulate him upon its undertaking; that we all place ourselves at his disposal and at that of his department in assisting him to form that Veterinary Sanitary Department, which in a short time he will recognize will save the country millions of dollars.

We are only few in the United States, but each of us working in our own sphere can do an immense amount of good work. Let us offer our services for the good of the country, gratuitous, if necessary, to fulfill the positions of Sanitary Veterinary Inspectors. We say gratuitous, for we may then ask from the department which will gain so much by our work, we may ask it to recognize our services, our indispensable value in the wheels of the agriculture of America by urging the establishment of a National Veterinary Institute on the same plan as those of continental Europe. Institute where all branches of veterinary medicine will be taught; where young men will learn to practice a profession so essential to every one, individually and collectively.

would be advantages, would not the art, in great difficulty, the fact of the few medical ability, or their use investigations. Veterinarians, America, and we see who ought to enough that qualifications which are found in be called a Sanitary, the want of communication.

We have lost by diseases of swine in a year no less than \$20,000,-000. Who knows how much we lose by pleuro-pneumonia, by anthrax, by glanders and farcy, by diseases of fowls, etc., etc.? Is it not time that our people should look into that fact? Is it not time that Americans should realize that veterinary science is something more than giving balls or drenches, or selling condition powders; that veterinary science is one essential branch of our wealth, as it is the science which not only cures but prevents.

Let our Acting Commissioner ask Congress for an appropriation, but not for investigations as referred to in its circular of September, 1877; not even for the establishment of a Veterinary Sanitary Department, but for the foundation, support and endowment of a large Veterinary Institute in Washington, or in proximity with some of our large cities.

Let that Institute be a true centre of veterinary education. Let our young men who are looking for an opening to a useful life, come and educate themselves in those many important departments of the profession which, one amongst all others, is so intimately connected with the social economy, trade and wealth of a nation, by the important services he may render as a physician, a surgeon, a jurisconsult, and, above all, as a sanitarian.

PHILADELPHIA VETERINARY DIPLOMA SHOP.

In one of our last numbers we called attention to the closing of the veterinary diploma mill headed by Prof. McClure, of Philadelphia, and most of our readers to-day know of the verdict following the trial of that person, inflicting upon him an imprisonment of nine months in the penitentiary and a fine of \$2,000. To Mr. Gadsden, of Philadelphia, the profession owes a tribute of thanks for his untiring efforts in bringing the culprit to justice, and it is a high credit to him that his whole work in this matter has been only for love of the profession to which he belongs. We present our friends in this number of the REVIEW copies of the original correspondence which took place between Robert McClure and the gentlemen who were the active agents in proving the scheme of the diploma shop also with a proof of the *diploma* itself. Those who have been unfortunate enough to buy these *worthless sheepskins*, as these credentials are called in our day, will probably, after this, see fit to remove them from their office, from the large and handsome frames where they were exhibited, and store them up in some place where they will never again see the light.

We understand that so far R. McClure has been tried on one charge only. Two or three others remain which will probably bring upon him a still more severe punishment.

TRANSLATIONS AND EXTRACTS FROM FOREIGN JOURNALS.

By A. LIAUTARD, M. D. V. S.

RHEUMATISMAL SYNOVITIS.

In the Archives Veterinaires, Prof. Trasbot called the attention of the profession to the form of lameness often seen as complications of acute pneumonia and pleurisy of the horse—a disease which is already mentioned by Fromage de Feugré as following attacks of pleuro-pneumonia. After stating that up to the time of publishing his writings no physiological interpretations of the disease had been given, and giving the etiology as to its frequency, and relating the different cases on record, Prof. Trasbot concludes that the great differences observed in the frequency of the rheumatismal synovitis are due more to the treatment instituted to regulate the march of the pulmonary inflammation. He says: "It is indeed very rare; if one adds to the classic therapeutic of pneumonia, a mode of depurative treatment, having for object to eliminate more rapidly the products of desasimilitation that Charles Robin has named vastes (*déchets*). Since that idea was suggested to me by a complete study of the pathological pathology of the inflammation considered generally, I have been able to collect numerous facts, all in perfect accord, and daily more and more corroborative. This year specially, as consequence of the numerous cases of pneumonia which have been treated in Alfort, I have obtained a positive demonstration of the veracity of this opinion. Out of more than sixty cases which recovered from single or double pneumonia, two only have been affected with rheumatismal synovitis at the period of the resolution of the affection, and these were precisely the only cases in which the treatment was the ordinary one put in practice in the school. In both, the pneumonia, though extensive, seemed not to be serious; the organism did not seem to be much impaired, and the march of the disease was very regular. Both would probably have recovered without treatment; they recovered in less than eight days by a depurative treatment, combined with the

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local remedy of the pneumonia." After considering at some length the statements made as to the frequency of these affections after diseases of the serous membranes, the pleura or the pericardium, and examining the phenomena produced under the influence of inflammation, and the modifications of the blood, such as accumulations in the plasma of all the immediate principles of denutrition, such as urea, uric, or hippuric acid, coloring matters and salts of the bile, &c., accumulation which is in proportion to the extent of the phlegmasy, its acute condition, and the want of proper elimination. Prof. Trasbot says that "the relations established between the presence of these vastes (*déchets*) in the plasma of the blood, and the appearance of the rheumatismal synovitis, has had precisely for results the institution of a depurative and more efficacious treatment."

The treatment in all the recorded cases has varied much: counter irritants, blisters, setons, cauterizations, tenotomy, and having failed in many instances, he divides the therapeutic of those diseases into preventive and curative. For the first, he has had recourse to diuretics and cholagogues, bi-carbonate of soda, nitrate of potash, spirits of turpentine. For the second, he recommends the administration of diuretics also, and the application, upon the seat of the disease, of blisters and mercurial ointments. The articles are closed by the suggestion of the employ of salycilate of soda, as recommended in human medicine.

—*Archives Veterinaires*, July and August.

IMMOBILITY DUE TO A SOFT FIBROMA OF THE LATERAL VENTRICLES OF CEREBRUM, WITH DILATATION OF THE RIGHT HEART, OF AN AGED HORSE.

The subject was an entire horse, about fifteen years old, which presented all the symptoms of immobility, with those of a suppurative collection in the superior and maxillary sinus—diseased condition for which he was treated by trephining of both the maxillary and frontal sinuses. The lesions of these cavities proved to be such that with them, and the fact of the animal being a *dummy*, it was decided to destroy him; this, however, not being done until both ventricles of brain had been punctured as a matter of experiment. Other troubles of the respiration and circulation had also been observed. The operation of trephining the brain gave negative results. The post-mortem revealed an emphysematous condition of the lungs, a large dilatation of the right cavities of the heart. "On opening the cranium, the meninges were found the seat of an intense con-

gestion. The arachnoid contained quite a great quantity of red serosity under its visceral layer, between the cerebral and cerebellous circumvolutions. The piamater is gorged with blood. The whole cortical layer of the encephalic mass is strongly hyperemic. But it is specially round the anterior extremity of the left cerebral lobe that the lesion is the most marked. There was a true inflammation, with fibrinous exudation, under the visceral arachnoid layer, and a beginning of red, muddy, wine-colored suppuration in the nervous substance. In opening the ventricles, an ovoid tumor, flatten from above, below, and entirely filling their cavities, was found. They both measured about seven centimeters in length, and two and a half in width, with nearly two in thickness. The left one was dark red by a deep vascular injection of the choroid plexus. On their surface was seen a mass of little points, of a white, nacreous color, shining and micaceous in aspect. In the right ventricle there was but a few drops of transparent serosity, while the left contained some cloudy, whitish, purulent liquid. The tissue of these tumors was firm, easily torn, and, examined under the microscope, was seen to be composed exclusively of very numerous and fine blood-vessels, with elements of conjunctive tissue. The shining spots which were found also over the surface of these tumors, prove to be cristals of cholesterine. All the other viscera, liver, spleen, kidneys, intestines, &c., were normal."—*Archives Veterinaire*, September, 1877.

DEATH FROM RUPTURE OF THE RIGHT PELVI CRURAL AND OTHER VENOUS TRUNKS.

By W. A. TAYLOR, F. R. C. V. S., Manchester.

On July 13, a bay draught horse was brought to the Infirmary, panting profusely, breathing greatly distressed, gait reeling; placed in a loose box, he immediately fell down and died. Seen about half an hour after death, the blanched appearance of the visible mucous membrane allowed a diagnosis of internal hemorrhage to be made.

The history of the case is briefly this: The horse was walking behind a burry, to which he was tied, and behind him was another horse and burry. The last-mentioned horse stumbled; his driver struck him with a whip; the horse jumped forward, and one of the shafts entered the anus of the horse in front, thus, as it were, impaling him for the instant. The injured horse struggled to free himself, and fell, and on the shaft being withdrawn from the rectum, a large quantity of blood followed in a gush, very little external hemorrhage afterwards taking

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place. That external hemorrhage did not occur to any great extent, was undoubtedly owing to the action of the spincter ani, which was subsequently discovered not to have been lacerated.

The post-mortem examination demonstrated that the shaft had passed in at the anus, taking an upward, oblique course to the right, and had penetrated (also obliquely) the rectum about six inches from the anal opening. From this it passed beneath the ilium, the ventral surface of which it had considerably grazed, ultimately reaching as far as the right pelvi-crural venous trunk, in which vessel there was a distinct rupture an inch in length. Shreds only of the external and internal iliacs could be found; indeed, the vicinal structures were almost reduced to a pulp. The mucous membrane of the rectum, for a few inches from the anus, was lacerated; beyond this, and the direct rupture, no injuries to the intestine were discernible. In the abdominal cavity was a great quantity of blood, in a semi-coagulated state. The viscera and vascular structures of the body were, of course, considerably blanched. There were no osseous lesions. The animal lived half an hour subsequently to the reception of the injury.—*Vet. Journal*, Sept., 1877.

DOUBLE SCROTAL HERNIA.

By R. MOORE, M. R. C. V. S., Sheffield.

The subject of this case was a valuable half bred colt, suffering with a double scrotal hernia—a very uncommon complication.

The case had alarmed both professional and unprofessional men, who thought operation impracticable. Mr. Cartledge was requested to see the colt, and undertook the operation.

As to the mode of operation it was thought the whole of the scrotum and its contents had better be enclosed by a single clam and allowed to slough. The impression was that if two clams were used, there would be a difficulty in keeping them *in situ*, also in cutting off the required extent of integument.

The colt was cast in the usual way and the bowels returned in the abdomen. The testicles were placed in position, and a strong, steel clam, fastening by a joint at one end and a screw at the other, was placed round the whole, including both cords—tunic and scrotum. Care was taken that the clam was placed as near the rings and embracing as much integument as possible. The screw was then made tight, and the colt allowed to rise.

The clam was frequently tightened by means of the screw, and was taken off at the end of a fortnight. That portion of the slough which had not separated was removed. The parts were afterwards kept clean and digestive ointment applied occasionally. During the whole of the sloughing process, the colt was evidently not much disturbed, the swelling and stiffness being trifling. He was discharged a month after the operation in all respects healthy and well.—*Veterinary Journal*, Oct.

MELANCHOLY DEATH FROM THE BITE OF A RABID DOG THREE YEARS AGO.

The following is a detailed report of a case of hydrophobia occurring *three years and three months after the bite*, and fourteen days after vaccination.

A. B., aged 21, veterinary assistant, was bitten through the centre of the right hand on the evening of May 21st, 1874. Not thinking the dog rabid, he did not apply to have the bite cauterized until mid-day on the 22d. Nitrate of silver was then freely applied, and poultices of salt and bread ordered to be continued until the wound healed by granulation. Within a few days his father telegraphed for the "Bedford remedy," and with the greatest persuasion the boy took it. He remained in perfect health until August 17th, when he complained of severe pain in the wound, which spread to the elbow, shoulder and neck. In the morning his landlady brought him a cup of coffee; and on attempting to drink he said it would choke him, and then followed a severe spasm. She sent directly for a physician, and his throat being examined appeared natural. He was ordered to get up. His father was sent for, who took him home—a distance of three miles. On the way he said the air was too much for him, and he asked his father to drive quickly. Visited that night, he received a subcutaneous injection of half a grain of morphia. Towards morning having had a dreadful night of spasms, without sleep, he was found in a severe spasm, pulse 120, breathing laborious, eyes red, skin clammy, and viscid saliva clinging to the sides of his mouth. Chloroform was administered at intervals until the afternoon, when he seemed much better, cheerful and passed two quarts of urine. When left alone, he ate a piece of cold chicken and baked apple. He had great horror of any one coming suddenly into his room, or looking at him, as it immediately produced a spasm. He was not alarmed at the house dog running into the room or barking, nor at running fluids, but he said he could not drink, or wash

himself for the spasm. After every four hours He died during his sufferings quite free from chloroform, of

Three months went home with weeks afterward silver, followed health.—*Veter*

By DR. O.

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Prof. Bendixen's remarkable series of cases of hydrophobia, collections of red corpuscles, and cedema of the ganglionary abscesses and the spots; hyaline ganglion cells, &c., the same. He and held that with particular centres, the results were contest the correctness of the following rule:

(1.) In the capillaries of the blood corpuscles

himself for the world. He was sure he would die if he had another spasm. After receiving a grain of morphia under the skin to be renewed every four hours, he was left quietly pacing up and down the room. He died during a violent attack of vomiting and spasms thirty-six hours after the first symptom. He had no cerebral symptoms, and said his sufferings were beyond description, with the exception of being quite free from pain during the intervals, and under the influence of chloroform, of which he spoke highly.

Three men were bitten on the same evening by this dog. One went home without having the wound cauterized, and died within three weeks afterwards. The other two were well cauterized with nitrate of silver, followed by salt poultices. They are now at large in perfect health.—*Veterinarian*, Oct., 1877.

TRANSLATIONS.

By DR. OSLER, McGill University and Montreal Veterinary College.

ON CHANGES IN THE BRAIN IN HYDROPHOBIA.

By DR. FOREL, Privatdocent in Munich.

Prof. Benedictt, in Virchow's Archiv., 1875, p. 557, described a remarkable series of changes in the brain of a dog, and also of a man, dead of hydrophobia. These were (1) hyperœmia, hemorrhages, collections of red and white blood corpuscles in the adventitia of the vessels, and œdema of the brain substance. (2) secondary changes: miliair abscesses and granular degeneration of the brain substance in certain spots; hyaline centres involving the destruction of nerve fibres and ganglion cells; encircling of the vessels with pigment, and flakes of the same. He regarded these as produced by thrombosis of the veins, and held that they were of constant occurrence in all cases, being met with particularly in the region of the sylvian fissures, the olfactory centres, the nucleus of the motor root of the trigeminus, &c. These results were confirmed in part by the investigations of Kotesnikoff. To test the correctness of these views, Dr. Forel has examined the brain in two dogs, two horses, one ox, and a man, all dead of hydrophobia, with the following results:

(1.) In the man there was found to a remarkable degree, filling of the capillaries and veins, and in some places, accumulations of white blood corpuscles in the adventitia; nothing else abnormal.

(2.) In the two dogs, especially in the first, remarkable collections of leucocytes were seen in the adventitia of the smaller and medium sized vessels, in all the sections. Here and there the inner coats of the vessels would not be seen for the accumulations of corpuscles. This condition was well marked in the oblongata, and in the motor centre of the trigeminus. In several localities small hemorrhages were determined. No trace of abscesses of pigment flakes.

(3.) The section of the horses' brain showed a perfectly normal structure. The blood vessels were almost completely empty, and presented only a few rather doubtful traces of increase of the leucocytes in the adventitia.

(4.) In the ox nothing abnormal was found.

In normal brains of the dog and man treated by similar methods, no trace of these collections of leucocytes were found about the vessels, which establishes the pathological significance of this condition of hydrophobia, though it was not constant, and never so marked as in cases of progressive brain palsy. The small hemorrhages result from disturbances in the circulation during the paroxysms, and the same are met with after epileptic attacks. These changes occur so frequently in many acute and chronic affections—progressive paralysis, typhus, epilepsy—that they cannot be regarded as in any way pathognomonic of hydrophobia.—*Deutsche Zeitschrift für Thier medicin.* Bd. III, Hft. IV.

THE TRICHINA EPIDEMICS OF SAXONY.

During sixteen years—from 1860 to 1875—39 trichina epidemics were observed in Saxony. The total number of cases, exclusive of light ones, which were not reported, was 1,267, and of these 19 died—1.58 per cent.

In relatively few cases was the infection produced by eating raw flesh; by far the larger number of the cases were due to the ingestion of smoked or fried sausages, 630 of the former, and about 340 of the latter. These sausages were made of chopped flesh, smoked for a few days, and then eaten cold, or fried for a few minutes. Among other sources of infection were brain sausages, thick sausages and ham. Of the 19 fatal cases, 3 had eaten raw flesh, 2 smoked, 8 fried sausages, and 2 ham. The source of infection in the other four cases was not ascertained. Of these cases, 15 were women, and only 4 men. The epidemics appeared in 22 localities; in Dresden, occurring seven times; in Leipzig, twice. In only one place did two epidemics break out with-

in four years. traced, 29 were five from animal fewer persons curing of the the majority taking of the some of the e 200, the large than 12. It a quently eaten

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in four years. In 34 instances in which the origin of the trichinae were traced, 29 were from hogs killed in butchers' establishments; the other five from animals killed for use in private families; and in these latter, fewer persons were infected, owing, probably, to the more thorough curing of the meat. The number of cases in single epidemics was, in the majority of instances, small; although the number of people partaking of the same animal must be reckoned at from 200 to 300. In some of the epidemics, the number affected reached between 100 and 200, the largest being 209, but in about half, the number was not more than 12. It appears probable that the flesh of trichinosed hogs was frequently eaten without producing the disease.

Of nearly 7,000,000 hogs slaughtered in Saxony during the 16 years, only 39 (1 : 180,000) induced trichinosis in man, though it is estimated that during this period, in addition to these, 944 affected hogs were consumed as food without producing the disease. Thus, of 100 trichinosed animals in Saxony, at the most, only 4 induced trichinosis in man—a somewhat remarkable result.—*Ibid.*

INFLUENCE OF HUNGER ON THE WEIGHT OF CATTLE.

Cattle from Galicia and Bukonina, for the Paris market, are transported by rail to Linz, without food or water; here they are put into stalls, fed and inspected. After two days they are reshipped, and four days later arrive in Paris, during which time they are neither taken from the cars nor receive food or water. On leaving Linz, they possess an average weight of 700 kilogr., and on their arrival in Paris, only 560 kilogr., thus losing, on the railway journey, 20 per cent. of their weight.

Sheep from Russia, for the Paris market, journey four days without food or drink, to Vienna, where they are stalled and fed. They are then re-shipped for Paris, being six days on the road, and fed and watered only once, either at Strassburg or Metz. On leaving Vienna, they have an average weight of 55 kilogr.; on arriving in Paris, only 45 kilogr., thus losing more than 20 per cent. of weight by the way.—*Ibid.*

AMERICAN VETERINARY COLLEGE.

OPENING.

The 3d of October at this institution was a gala day. The lecture room was filled to its utmost by members of the profession, students, and a few friends of the veterinary medicine. At 4 o'clock p. m., Prof. Veisse, as Secretary of the Board of Trustees, opened the exercises by giving the history of the College. After stating how, through legal difficulties in the School where the faculty had successfully been engaged for 10 years, it had found it necessary to resign from the institution they had, properly speaking, raised to the position of an honored and respected college, and how satisfied of the results which had rewarded their efforts, the Professors had found themselves able to have a Board of Trustees duly organized, and how a legal character was obtained under the General Law of the State of New York—law under which other medical institutions were also organized, Prof. Veisse gave the gentlemen at present about entering the Class of 1877-78, the satisfactory proof of the legal power of the College to grant diplomas, as given to the College by its charter.

Dr. Liautard followed the remarks of Prof. Veisse, in giving the audience the schedule of the duties and of the requirements of the veterinarians. After showing how the veterinary surgeon had not only duties which called him upon the task of attending animals in disease, or to restore them while disabled by external injuries, the doctor insisted upon the duties of the practitioner as a sanitarian and veterinary jurisconsult. And thus having divided these as the requirements of educated veterinarians, a description of curriculum and of the lectures upon these different subjects was laid before the class, with the closing announcement that the examination of candidates for matriculation was to take place on the next morning at 9 o'clock. Prof. Arnold, M. D., and Prof. Whitauss, M. D., of the Medical Department of the University of New York City, being appointed Examiners.

At the time of going to press, thirteen students have been examined, two of them being unsuccessful; the class numbers a much larger number than last year, and amongst them are found two, sent by the Agricultural Societies of New Jersey and Michigan, to fill up the free scholarship offered by the Faculty.

DR. MCCLURE

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CORRESPONDENCE.

[Copy.]

PHILADELPHIA, April 9th, 1877.

DR. MCCLURE :

SIR : As I cannot find you at your office in the evening will you inform me if I pass a good examination before you on veterinary surgery and medicine, will you give me a diploma if I pay you \$100 at once. I know all about the business, but I want a Philadelphia or Pennsylvania diploma—which is it called?—that you grant. I want it to practice in Iowa as soon as I can get away. A friend of ours at Lancaster got his of you I am told. He makes out it cost him much more. I cannot pay any more than I state for one; would rather go without one.

Yours respectfully,

J. WESLEY.

[Copy of McClure's Answer.]

903 FILBERT ST.,
PHILADELPHIA, April 11, 1877. }

DEAR SIR :

Yours of the 9th is to hand, and would say that for you to drop me a note or p. card on what day you will call on me, as I live on my "farm." Call from 10 o'clock, A.M., to 2, P.M., on any day, and the Board of Directors will grant unto you the Philadelphia diploma in from three days to one week, and if you say that you know all about the business and that you have a copy of my book entitled "Disease of the American Horse, Cattle and Sheep," by myself, then a diploma will be granted to you *without* examination; and if it is satisfactory to you, *copy* the enclosed and sign it, and send it along with post office order for the money, and the diploma, enclosed in a fine, black walnut frame, all ready to hang up in your office, will be sent to you by express or otherwise in a few days.

I am, etc.,

R. MCCLURE, M. D. V. S.

PHILADELPHIA, April , 1877.

To DR. MCCLURE :

Enclosed find post office order, one hundred dollars, for matriculation and graduation fee of the Philadelphia Veterinary College.

J. WESLEY.

[Copy, posted in Iowa.]

DYERSVILLE, IOWA, April 18th, 1877.

DR. MCCLURE, Philadelphia :

SIR : I understand, from a friend in your city at the present time, but from our State, that you grant diplomas from the Philadelphia Veterinary College to men who know their business, and the proper use to make of them, and that he means to bring one home with him. Will you let me know how much money I am to send you for one, and how many veterinary surgeons' names will be signed to it ; also, if they will be well known men as veterinary surgeons.

As Dyersville contains a great many English people, well off, could you get a member of the English Veterinary College to sign it ; that would make it worth more money to me. Let me know, by return of post, the price, as I want to get one by the time my friend gets back.

Yours, with respect,

DANIEL UNDERWOOD.

[Copy of answer received from Iowa.]

903 FILBERT ST., PHILADELPHIA, }
April 20th, 1877. }

DEAR SIR : Your letter of the 18th inst. is at hand. Mr. J. Wesley, of your State, is now here, studying and reading the first book of the College, and will receive its diploma in a few days. I suppose he has told you the great object we have in mind in granting diploma degrees. Dr. J. Wesley, M. P. C. V. S. ; three well known vets. sign ; one, Mr. Gould, is an Englishman ; one gentleman, the President, is an M. D. besides myself, who is known over the world, being the author of 4 vols. on the great subjects of veterinary science. Three of those books will be sent to you along with the diploma, by express, in 3 days after receipt of the following paper from you :

DYERSVILLE, IOWA, April 1877.

DR. MCCLURE :

DEAR SIR : Please find post-office order for \$135; fees for matriculation and graduation for the session of 1876-7, in the Veterinary College of Philadelphia.

D. UNDERWOOD.

This entitles you to the degree, Dr. Daniel Underwood, M. P. C. V. S. These letters differ only from the English by R., from Edinburg by E., Glasgow by G., from Dublin by a D.

I am, etc.,

R. MCCLURE, M. D. V. S.

TO DANIEL UNDERWOOD, V. S.

To all whom it

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thereto.ALFRED L. ELW
GEO. W. CLOSS,

[Copy of "Bogus Diploma," found on Robert McClure when arrested.]

Ars Veterinaria Post Medicinam Secunda Est.

VETERINARY COLLEGE OF PHILADELPHIA.

(Coat of Arms, State of Pennsylvania.)

To all whom it may concern:

KNOW YE, That we, the Officers and Professors of the Veterinary College of Philadelphia, do, by the authority vested in us by the sovereign power of the State of Pennsylvania, confer the degree of Doctor of Veterinary Medicine and Surgery, with all the attending immunities consequent thereto, upon

J. WESLEY,

He having attended the curriculum of studies, and complied with all the requirements imposed by the laws of our Institution. And we hereby certify his entire ability to treat, in a scientific manner, all kinds of diseases peculiar to Veterinary practice.

In testimony whereof, we have granted him this

DIPLOMA,

On this first day of March, Anno Domini 1877, in the Hall of our College, at Philadelphia, affixing our signatures, and the seal of the College thereto.

ALFRED L. ELWYN, M.D., President.
GEO. W. CLOSS, V.S., Secretary.



ROBERT MCCLURE, M.D.V.S.
JNO. H. GOULD, V.S.

REPORT OF CASES.

PUNCTURED WOUND OF THE CHEST—DEATH.

TO THE EDITOR OF THE VETERINARY REVIEW :

SIR : I was called, on the morning of September 7, to see a very fine young mare, the property of Mr. Briggs, seedsman, of this city, which had received what proved to be a fatal injury. The animal was being driven by Mr. Briggs, on passing over a small culvert, the animal broke through, and made a plunge forward, but recovered herself almost at once. Mr. Briggs, fearing she might be injured, got out and examined her; the night being dark, he lit several matches, but only found a slight injury to the knee, not thinking that at all serious; got into his buggy and drove home, a distance of three miles, and says his mare came along as lively as ever; on arriving home she was unhitched as usual; on raising her foot to step into the stable, she was noticed to show pain by moaning; a light was brought, and a close examination made, and it was soon found that the poor mare was very seriously injured. A large wound was found in the pectoral muscles between the sternum and arm of the right fore leg. Becoming alarmed at this, Dr. Tegg was sent for; he made an examination of the wound, but found nothing in it; he stitched and dressed the wound, but before leaving her for the night, he was looking her over, and just behind the elbow he found a hard ridge like a man's arm; he concluded there was some foreign body there; on making an incision through the skin and muscles, he found a large piece of plank; on being measured, it was found to be twenty inches long, three inches wide at the large end. After removing the stick, the opening was closed, and a bandage put on to keep the air out, Dr. Tegg gave his opinion that she could not live. I was called in the following morning. I found her standing, but was in great agony and appeared to be sinking fast. The whole right side was completely filled with air, and on being tapped with the fingers sounded almost like a drum. I told the owner she could not live, but he was anxious I should do something. I ordered her to get port wine every hour, which revived her for a time, but death closed the scene about nine o'clock in the evening, just twenty-four hours after the accident.

Dr. Tegg and myself held a post-mortem the following morning, and found that the stick had entered the pectoral muscles, passed up-

ward and broke, passing diaphragm, and case to show still at the distance of thr

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EXCHANGES—COMMUNICATIONS RECEIVED, &c. 305

ward and backward until it reached the seventh rib which it struck and broke, passing into the thorax just below the lung, went through the diaphragm, and into the intestines about five or six inches. I report this case to show what great suffering this poor animal must have endured, still at the same time drawing her master and his friend home, a distance of three miles, as faithfully as ever.

A. DRINKWATER, V. S., Ont.

ROCHESTER, October 18, 1877.

REGULAR GRADUATES OF THE VETERINARY DEPARTMENT OF THE HIGHLAND AND AGRICULTURAL SOCIETY, EDINBURGH.

James Booth.....	1870
James A. Going.....	1868
James Hume.....	1853
William Keith.....	1858
Thomas Shea.....	1859
Andrew Smith.....	1861
John Turnbull.....	1862

EXCHANGES.

Hospital Gazette and Archives of Clinical Surgery, N. Y.; Scientific Farmer, Boston; Country Gentleman, Albany; American Agriculturist, N. Y.; Scientific American, N. Y.; Medical Record, N. Y.; Journal de l'Agriculture, Paris; Live Stock Journal, Chicago.

COMMUNICATIONS RECEIVED.

John Myers, Sr., Cincinnati, Ohio; A. A. Holcombe, N. Y.; W. Gadsden, Philadelphia; A. Drinkwater, Rochester; Prof. McEachran, Montreal.

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AMERICAN VETERINARY REVIEW,

DECEMBER, 1877.

ORIGINAL ARTICLES.

THE CASTRATION OF COWS.

By C. SCHMIDT, District Veterinarian, Hofgeismar, Germany.

From the German, by F. S. BILLINGS.

Original to be found in Archiv. fur Thierheilkunde, Berlin, Vol. 2, 1876.

I have been long in debate whether to give a complete translation of the above or not, but upon undertaking to make a review of the same, there seemed so little that could well be left out, that I felt obliged to give the whole, even at the cost of valuable time. The importance of the question is self-evident.

The operation of ovariotomy was mentioned in the 16th century by Bartholini, as being performed in Denmark, with the aim of a quicker or more complete fattening of the animals, and it was also in vogue with the same end in view about the middle of the 18th century (Britz) in Saxony, and towards the end of the same in Sweden (Retzius). According to Viborg, it was also known in Jutland about the same time; it then passed into forgetfulness for a long time, until 1830, when it was again introduced to public notice, and much lauded, as occasioning a greater yield of milk per diem, by Wynn, an American; by Levrat, of Lausanne; Regène, of Bordeaux, and Marin, of Laugonet, who found many supporters. The operation was also frequently performed in Schwabia about this time, with the idea that the animals became more rapidly and completely fattened, and that the flesh was more delicate. Old castrated cows were known as "Queens."

From this time until 1850 the operation was now and again performed, the aim of the operation being as mentioned, a greater yield of

milk, better fattening, and a supposed improvement in the quality of the flesh, and to the curing of aedaeomania. First, after Charlier, of Rheims, in 1850, had taught the manner of operation by vaginotomia, and practically shown the rationality of the same, and described in most glowing colors its favorable influence upon lactation, people began upon all sides to speak of its perfect safety and many advantages. It was the same by this as by all new things. Actual investigations, and the careful estimation of the facts derived therefrom, produced doubts of the correctness of Charlier's and others' praises, especially in regard to the milk production. The enthusiasm of owners and veterinarians was cooled by an occasional loss of an animal from the operation, and the operation again passed into forgetfulness so far as milk production and flesh fabrication was concerned, so that it was seldom spoken of during the sixtieth decennium. It was discussed at the meeting of Veterinary Union of Schwabia and Neuberg, in 1874 (Adam Wochenschrift, 1874.) It was universally decided that it was only to be recommended as a surgical interference in case of aedaeomania, a view with which I exactly agree. It often happens, however, that an occasional owner becomes enthusiastic by reading over some article upon the subject written at the above-mentioned periods, and declares himself favorable to further investigation; and so opportunity was offered me in the fall of 1874 and early months of 1875, to perform the operation upon quite a number of animals, which gave me ample material to draw justifiable conclusions of the value of the operation.

Before giving the obtained results we must touch the following questions : 1. What do we intend to attain by castration ? 2. In what manner can we best perform the operation ? 3. What are the exact results ?

If, in the beginning, it was the intention only to make the female analogous to the male animal, and make them by castration more capable of fattening, it was not long before people began to think they had found a means in the same by which the quantity of milk secreted would be greater for several years after the operation ; even the daily quantity of milk was supposed to be greater, and the castrated animals were at the same time expected to fatten nicely. These were the wishes of the owner of the animals in question, as he would not be troubled with breeding calves—a guaranteed milk machine for a number of years. If the castration answered this expectation we shall see later on.

Nymphomania gives another occasion to the operation, as known, a constant sexual excitement, by which the animal in question finally

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becomes emaciated to a skeleton, is conditioned by different neoplasiae of the ovaries, as tubercles, sarcoma, carcinoma, and, above all, cystoma, further through hydrops of the folliculi graafiana. (NOTE.—The cystoma ovarii is a cystic formation of the ovaries, through proliferation of the germinal epithelium forming accumulations of cells, which penetrate into the stroma of the same and secrete. The secrete accumulates within the cellular accumulations and forms the cysts, which, when lying in opposition, form a tumor—cystoma. Later, the cysts become confluent and form hydrops ovarii multilocularis. Hydrops follicularum ovarii owes its genesis to an accumulation of an albuminous fluid in a folliculus graafiana. This latter form is caused through irritation, and might be called catarrh of the graafian follicle.) With the removal of the ovaries, that is, the removal of the cause, the disease is healed, and only, by tuberculous ovaries, is the result of the operation negative, as this is but participatory condition of a general dyscoria. I can but recommend the operation in all cases of developed nymphomania, as at present no other method of healing the condition is at our command. Of four cows operated upon by me in the last year, three recovered at once, while the fourth was killed in course of time on account of tuberculosis.

What is the most conformable manner of operation? This question renders it necessary to pass in review the various modifications of the same. All methods are united in that the operation of ovariotomy must be performed either from the flank or from the vagina. The first form, that of the flank operation, cannot be passed by young animals, in that the vaginal canal is too narrow to allow vaginotomy. The method consists in first securing the animal, and then clipping the hair upon the place of operation, and in then making a section through the cutis, subcutis, musculature and peritoneum, reaching with the hand into the cavum abdominis, in order to separate the ovaries from their ligaments, and remove them. The separation of the ovaries can be performed either with the finger nails or with the ovariotomy forceps. The wound is to be closed *lege retis*. If cattle do in general bear such surgical manipulations, yet cases enough have come to pass which have ended fatally. Peritonitis, with a quantitative exudation, was in general the *causa mortis*. It was but natural that operators should address themselves to the much-praised method of Charlier, and seek its improvement. The method was soon much simplified, and the costly instruments of C. replaced by simpler and cheaper. The topographical anatomy of the parts in question is as follows: The vagina of the cow

is from 30 to 35 ctm. (12 to 14 inches) long, according to the size of the animal; it embraces anteriorly the cervix uteri with the orificium uteri externum, and is on the anterior end outwardly embraced by the peritoneum, which is easily to be separated from the muscularis. Superior to the vagina is the rectum, which is at once drawn upward by the operation of vaginotomy (nervous action), and antero-inferiorly to the rectum the vesica urinaria is situated; the ovaries are situated laterally to the uterus, somewhat lower than the latter, are bound to the cornua of same by their ligaments and the tubae fallopianae, and enclosed in a duplicature of the peritoneum, otherwise free; they are more flat than round, and vary in size from that of a bean to a walnut, or even larger; their arteries, branches of the aa spermatica intera, have a very irregular course, and this is probably the reason that hemorrhage is so easily stilled after operation, though thrombosis and a violent hemorrhage is a thing of seldom occurrence. The vaginal mucus has many rugae, and reacts very quickly against the influence of instreaming air. It distends itself very quickly, and makes the formation of a fold impossible for a short time.

One of the modifications which Charlier's method soon suffered was in regard to vaginotomy. While Charlier, Werner, Colin performed the same after previously distending the vagina in a vertical direction, the brothers Richter proposed another way: they formed a simple transverse fold in the superior parietes of the vagina, punctured the same at its basis, and cut downwards. The undeniable advantage of this method is, aside from the much cheaper instruments required, that we have only to enter the vagina *once* with the *left hand* in order to entirely complete the operation, while by Charlier's method the section is made with the right hand, and the withdrawal of the ovaries effected with the left hand. Manipulations, which not only require much time, but also allow the entrance of more air than is proper into the cavum abdominis. J. Richter introduced into use a knee-scissors for cutting through the folds made in the vaginal parietes, which, however, found but little adoption, in that it was not always certain to make the cut at once, and led to laceration of the wound. All operators are united in making the operation 3 to 4 ctm. ($\frac{3}{4}$ to $1\frac{1}{2}$ inches) from the orificium uteri externum, and in the medium line of the superior vaginal parietes, and that it is an unpleasant circumstance when the peritoneum is not concomitantly sectioned. In the last case several operators recommend the perforation of the same with the fingers; but this is seldom successful, and has for a consequence the formation of sinus, by the separation

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of the peritoneum from the muscularis, by which the operation is made unnecessarily difficult. The better and simpler way is to fasten the same between the thumb and first finger, and to draw the same into the wound, and there separate it; the cut can easily be distended by the fingers in case it is not long enough. If the cut is made too far backwards, or laterally, we find ourselves outside the vaginal peritoneum; and sinus formation in the subserous connective tissue is a very unpleasant consequence, which comes from endeavoring to puncture the peritoneum with fingers. Aside from this, if we succeed in puncturing the latter with the fingers we are not able to reach the ovaries until the entire hand is through. The hemorrhage from the vaginal wound is insignificant, and when the cut is made in the proper locality, takes place into the vagina, and not, as Putz says, into the cavum pelvis.

The second operative act is the same by all operators, and consists in seeking for and withdrawal of the ovaries into the vagina by means of the first and second fingers of the left hand. Pathological conditions of the ovaries render this process difficult, and care must be taken with ovaries complicated with large cystoma, whose parietes are very thin, or with such having large corpora lutea, in that we must not rupture the first or press the latter out, which would lead to a loss of the ovary, perhaps, and require a second search. I fortunately met with no such case, however.

The last act of the operation is the extirpation of the ovaries, with or without torsion, and in the first case again with or without section of the ligamenta ovarii. Charlier recommends cutting the ligament upon both sides, then fixing the balance with the fingers, and separating the ovaries with the ovariotomy forceps per torsion. Richter and others cut into the ligament upon one side, and fix the balance with forceps which are bent at almost a right angle, separating the ovary per torsion with the hand. Colin used clams, and proceeded in like manner. Basse, in St. Petersburg, used the ecraseur, and praised it very much. Others did not like this method. Putz separated the ovaries in twenty cases by simple section (without torsion), and I have also in many more without any disadvantageous consequences, although in one case I could feel the pulsating blood stream against my hand. I changed this treatment and fixed the ligamenta ovarii with the powerful forceps of Richter, and separated the ovaries by others resembling the ovariotomy forceps of Charlier. I did this in order to see if the blood which gained access to the cavum abdominis by the simple section of the ligament was not the cause of the constantly present erythritic fever and the long continued

quantitive decrease of the milk. In forthcoming cases I shall unconditionally follow the above method of Putz, as my suspicion proved itself unfounded, and the method being the simplest of all, giving smooth traumatic surface and being the easiest of execution. I was not successful in fixing the ligamenta with the hands in any case without previously cutting into them laterally. The torsion with the forceps has the disadvantage that severe disturbances with fatal endings can easily take place, and the cutting of the ligaments has convinced me that this is the best method. The forceps of Richter are too short to operate advantageously. They do not correspond to the length of the vagina, and favor thereby the entrance of air. The torsion forceps are, also, too weak, and not capable of offering resistance enough to the strong ligaments, thereby retarding the torsion. The straight bistoury with a leather cup is disadvantageous, in that the operator easily injures the balls of his hands in the removal of the same, and the retention of the same in the hand after baring the blade renders the holding of the transverse fold with fingers difficult. I used a bistoury-caché, 35 ctm. long (14 inches.) With the latter and Richter's forceps the operation is very easy, and surely and rapidly performed in the following manner: The animal should be bound short; three or four assistants should be at hand, one to hold the head, another to stand at the side in order to obviate lateral movements as well as arching of the back during the operation; the third should hold the tail to one side and attend with the instrument. The operator should moisten his hands and arms with warm water (oil is not conformable, rendering the holding of the transverse fold and instrument difficult), and introduce them (the left hand and arm) into the vagina; he then forms a transform fold in the superior vaginal parietes in the median line of the vagina, and immediately posterior to the orificium uteri ex., and draws the fold downwards; the thumb, first and second finger are to be used to form the fold. The operator then enters the withdrawn bistoury, following along the left arm, places the anterior end upon the thumb and against the posterior surface of the transverse fold; he then pushes the blade of the bistoury out by means of the button at its posterior end, with the thumb of the right hand, the fold being concomitantly punctured at its basis; the operator holding the fold firmly with left hand, he then uses the first and second fingers, passes them over the bistoury and presses it directly downwards, or presses the fold upwards, at the same time drawing the blade downwards and cutting at the same time. Is the vaginotomy successful, of which we can easily convince ourselves, with a finger of the left hand,

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the operator withdraws first the blade of the bistoury, and then the latter. In case the peritoneum remains intact, the operator must attach it with thumb and first finger, drawing it into the wound and puncturing it with the bistoury ; the cut is easily sufficiently extended with the finger. I do not recommend the puncturing the peritoneum with finger, as is occasionally recommended, as it easily leads to the separation of the peritoneum from the muscularis, and formation of sinus, which make the operation much more difficult. The ovaries are then to be sought laterally to the uterus with the first and second fingers, and in general first the left and then the right ovary drawn into the vagina, and then with scissors separated from the ligaments close to the ovaries, or the attachment forceps may be used instead of the scissors. They must not be placed too near the ovary ; they must be closely pressed together with the thumb and first finger ; the ovary can then be separated by 3-6 torsions of the ovariotomy forceps. The entrance of air is impossible to avoid, however carefully we compress the vulvae, but does not seem to exert any consequential harmful influence. The entire operation can be completed in three or four minutes. In regard to the formation of the transverse fold, this is always impossible if the vagina becomes distended ; a delay of perhaps ten minutes is caused thereby.

The consequential phenomena following the operation are at first those of pain, the animals neglect their food and drink for one or two meals, lay down, extend the head and neck, gaze round at the abdomen, arch the back, and are sometimes meteorismically distended in proportion to the quantity of air which gained access to the C. abdominis during the operation. The meteorismus again vanishes in the course of 12 or 18 hours, followed by the phenomena of a light inflammatory fever. Although the appetite may now return, and the rations be completely consumed ; although slowly the temperature of the rectum appears to ascend from 30-30.3 R. (99.5-100 F.), of healthy animals, to 31-31.4 R. (101.75 or 102.6 F.), and by all castrated animals appears to remain stationary for almost four weeks, insignificant variations not considered. Violent disease phenomena may be expected if the temperature rise to more than 32 R. (104 F.), with concomitant sinking of the milk secretion during the first days succeeding the operation. Several cases of this kind, where the milk secretion was almost checked and the temperature increased to 32.2° R. on the second day succeeding the operation, died of peritonitis, or in consequence of abscess formation, while others which demonstrated like phenomena as regards the

milk secretion, but by which the temperature did not rise above 31° or 32° R., recovered with moderate celerity.

I especially recommend the thermometric, in unison with careful quantitative observations of the milk secretion, as the means by which we are enabled to warn owners and prevent unnecessary loss on the animals by timely slaughtering of the same. I also sought to reduce the temperature of the wounded parts by means of cold aqueous clysters in the rectum. It sank in the vagina about 1° R. for a quarter of an hour, but soon attained its former altitude. It must be left undecided if the continuance of this treatment three times a day for eight days was the cause of the more favorable course. I paid little attention to the pulse, as I must admit I place but little dependence in these phenomena in cattle disease. I found the vaginal wound closed by many animals per prim. inten. on the third or fourth day, without tumefaction in the vicinity, only by a few did it heal per sec. inten., and then the pus flowed out the vulvae for a short period.

A further unpleasant consequential casualty by ovariotomy is the formation of abscesses in the c. pelvis, and probably on the place where the ovary was separated from the ligament per torsion. I observed this twice by my cases. Once the abscess limited on the vaginal parietes was opened and emptied; the other it was impossible to empty, and the case ended fatally. Animals which appear unwell some time after the operation, and which appear to be daily failing, should always be investigated for such abscesses in order that assistance may be rendered if possible. Although many authorities speak of the operation as being free from danger (Pflug considering the danger = 0), and further that complete health and their previous lactation condition, with few exceptions, return in five or six days, I cannot agree with them, and must emphatically contradict the assertion. Although the patient may outwardly appear healthy, the long continued increased temperature and a review of the milk table, also the loss in weight, prove only too emphatically that convalescence may continue weeks; yes, even months. I at first attributed this slowness in convalescence and the other phenomena to resorption of the hemorrhagic elements, accompanied by a very mild peritonitis, but was obliged to discard this assumption, as the conditions were the same when the ovariotomy was performed per torsion. A partial peritonitis upon the locus operationis may be the occasional movement. If this fact has been overlooked by the operators in question, so must the reason therefore be that they have only given their attention to the outward phenomena of the op-

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ganisms in question, and neglected to make regular statistical records of the milk quantum. I do not consider the operation as one entirely free from danger; we can always reckon on a loss of five or more per cent. A simple peritonitis, which *may* always follow such surgical interferences, may lead to fatal conclusions. Charlier reports a much smaller per cent. than the above. I doubt, however, if he gave to us the entire truth.

Is the operation advantageous in an economical point of view? In so far as we have the removal of nymphomina in view, the answer can be emphatically "Yes," as this is the only therapeutic means of value at our disposal. The question has another color when made in relation to quantiture of milk and flesh production. In order to give these questions a trustworthy answer, the investigations must have a genuine basis; it is not alone sufficient that the milk quantum is daily measured, but the food of the animal for a time previous to, and during the investigation, must be daily *weighed* (not measured), and contain a certain quantum of protein, hydrocarbon, etc. If this is not the case, the reported favorable results from the operation are valueless. Again, all animals devoted to the operation must be in the highest lactation period. All these momenta seem to be entirely overlooked by previous experimenters—at least I can find nothing of the kind reported in the literature at my command—and it was entirely natural that observers should have most varying results.

By my experiments in the years 1874-75, with 21 cows, all the necessary conditions were filled, to give the necessary reliability to the results. Not only was the material offered me all I could desire, the rations were also accurately measured before and after the operation; for each 1,000 lbs. (live weight), was allowed 25 lbs. dry feed, 2.5 nitrogenous, and 13.5 nitrogen free substances, per day; the milk quantum from each cow was exactly measured three times a day. This procedure was strictly adhered to, to the close of the experiment. Those animals destined to fatten received a correspondingly exact ration. The temperature of the stable varied between 12 and 14° R. (59 to 62.5 F.) The effects of the castration were the following:

a. With regard to fattening ability. The weights were taken always in the morning, and every eighth day, the results were a loss in the first eight days of from 30-75 kilog. (1 kilo. 2 lbs. 8 oz., Troy,) in the following week a gradual gain was noticeable (by No. 1, the minus after 5 weeks was 70 kilo.; by No. 3, 25 kilo.; by No. 4, 67 kilo.; by No. 6, 60 kilo., and the status quo ante was not obtained for a period of 4 to 6

weeks, or more. From this period the castrated cows held their own with the non-castrated, and when devoted to fattening, they fattened well, but in no way better than the non-castrated. These observations exactly correspond with those I made in the 60th decen, and if they stand opposed to the communications of other observers, it appears to me as if they credited to the operation what should be credited to the feeding account. I also took especial pains to satisfy myself with regard to the flesh, qualitively, and found that the flesh of the castrated in no way excelled that of the non-castrated, but I will remark that the animals had in both cases attained considerable age. We often find it reported that the flesh of castrated cows resembled that of young oxen, and the laying on of fat was very remarkable, again very insignificant, results which it would appear are very dependent upon the age of the animals in question. The influence which castration exerts upon male animals in regard to fattening and flesh quality, is decidedly not the case by females.

b. With regard to the secretion of milk. If we study the milk table, we observe that by all the castrated animals a more or less important minus in the milk quantum took place for a long time—by some it continued forever, then for some months it equaled or approximated the yield previous to the operation, and finally it frequently happened that a rapid decrease in the quantum took place. Only a few of the animals, Nos. 2, 3, 5, 13, 15 and 21, show an increase for a short time. If the assertions of Charlier and others, that the castrated animals continue for a year or more to give the same quantum of milk that they had given at the time of castration, is an exaggeration, yes, as decidedly false. Proof—the milk table. Yet we cannot deny that the castration is not without influence by different animals in this regard, the lactation period is lengthened. It is a rarity that good animals give great quantities of milk for more than 10 or 12 months at a time, yet the influences of castration are so insignificant in this regard, that the plus in milk scarcely covers the decrease which was consequential on the operation, to say nothing of the cost of the operation, the casualties which *may* occur—that it does not give much encouragement to the popularity of the operation. The milk is qualitatively affected by the operation, as Ercolini and Marchand have asserted, and Dr. Dietrich has shown by analysis of the milk from the animals I castrated, that the fat and casein elements were increased, but for this small advantage no thinking breeder or owner would think of assuming the other risks of the operation.

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In accordance with the above facts, I must say, that "*the castration of the cow is a useless, and in an economical point of view, a disadvantageous operation, in so far as it has relation to the lacteal secretion or fattening qualities, and deserves, once for all, to be driven out of existence.*"

PERIOSTITIS.

By A. A. HOLCOMBE, D. V. S., N. Y.

[Continued from Page 196.]

Inflammation of the periosteum as a complication of quarter-crack is but occasionally met with in practice, yet it may occur at any time, and is important in its bearing upon the course of treatment to be pursued in consequence of the complication, as well as interesting to the profession because of the absence of any mention of this condition in the text books upon veterinary surgery. That periostitis of a severe character, with even caries of the os pedis, should exist in rare cases of quarter-crack, and yet never receive the recognition of our authors, indicates the imperfection of our English veterinary literature. Although a detection of its presence in the past may not have mattered so much as to the subsequent treatment and ultimate results, its early detection and proper treatment in the light of recent days, when so many rapid trotters are prone to spring quarter-cracks on account of the character of their work, especially when carrying toe-weights, becomes of great importance, both to the Veterinarian and his employer. As a complication of toe-crack, it is very often seen, and is due to the same causes, runs the same course, and demands the same treatment as in quarter-crack. It is in those cases of quarter-crack that have existed for a lengthened period of time, and where the wound is long and deep, that the continued irritation and inflammation of the soft tissues spreads to the periosteum beneath, and a circumscribed periostitis results.

Except in rare cases, the inflammatory action is limited to the external layer of the periosteum, and where suppuration follows, it is found between the two layers. This inflammation is generally of a chronic character, and is maintained solely by the irritation and inflammation of the surrounding tissues, which, in their turn, are kept constantly irritated by the presence of foreign substances coming through the opening in the wall of the foot, and by the pressure from the edges of the wounded horn.

If the inflammation is long continued, and especially if the animal is made to work, the deeper layer of the periosteum may become involved; in this instance there is superficial inflammation of the bone substance, and the products of the inflammatory action is thrown out upon the surface of the bone, detaching the periosteum, and by cutting off nutrition, induces a limited caries. The consequent suppuration still further separates and destroys the periosteum until this membrane is ruptured, and the pus is discharged through the cleft in the horn.

SYMPOTMS AND COURSE.

Since quarter-crack is seen in all classes of horses, although it is perhaps most commonly met with in those used for fast work, the complication above spoken of may also be seen in all classes—but not so with toe-crack, for it is of rare occurrence, except in animals of the heavier breeds, and used for slow and heavy work. Again, while toe-crack will be seen on the hind feet as well as the fore ones, quarter-crack seldom or never occurs behind. The presence of periostitis where either toe or quarter crack exists, will be detected by the character of the lameness, the soreness evinced upon pressure to the parts, and by the suppuration. Where permanent lameness accompanies either of these injuries to the wall of the foot, I very much doubt if it is ever due to any cause other than periostitis. In quarter-crack with periostitis, the foot is rested at every opportunity, and every step is accompanied with lameness. There is more or less heat around the coronet upon the inner side, while pressure upon the edges of the wound causes flinching, and tapping the wall with a hammer causes extreme pain.

Regarding the suppuration, it may exist to a very limited extent, even without any periostitis whatever; but in these cases the lameness is entirely absent, or at most shows itself slightly while the animal is working, and subsides with a little rest. Where the inflammation of the periosteum has ended in suppuration, the quantity discharged is more or less extensive and continued, while if caries exists the peculiar smell of diseased bone will indicate its presence.

The tendency in the majority of these cases of periostitis, if left to themselves, is always to caries, and, as a consequence, demands the interference of the surgeon. If, on the other hand, the patient is given rest, and foreign substances prevented from entering the wound, the inflammation will subside, the suppuration cease, and the wound heal, providing it is placed in a favorable condition.

The caries accompanying these two diseased conditions is never extensive, exists more often in toe-crack, and is very amenable to treatment.

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ANATOMY OF REGIONS.

Translated from Peuch and Toussaint's, Précis de Chirurgie Vétérinaire.

By A. LIAUTARD, M. D. V. S.

[Continued from Page 230.]

SECTION II.—TEMPORAL REGION.

This is a very natural region, which writers on the external form of the domestic animals have mixed up, without reason, with the frontal region, while they have called the *temples* the bony projection corresponding to the temporo-maxillar articulation.

For us the temporal region corresponds to the temporal fossa ; it is then situated on the sides of the cranian portion, between the anterior and the lateral faces of the head, bound inward by the parietal crest, forward by the orbite, outward by the zygomatic process, and extending backwards to the pole ; the conqua seems to rise from its external and posterior portion.

The temporal region is convex from side to side and slightly from forward backward ; it projects over the frontal region, and this more so as the muscles are more developed. In those animals where the muscular system is emaciated, a flat part takes the place of the prominence ; it presents then forward a depression more or less marked, especially in old animals, hence the name of *hollows* of the eye, given to it by old writers. The skin is fine and loose, especially inwards and behind the ear. Under it we find a first muscular layer, agent of motion of the conqua. The muscles which compose it are attached partly to the scutiform cartilage, a cartilaginous piece situated in front of the ear and easily defined under the skin. These muscles are—the zygomato-auricularis*, the external temporo auricularis†, and the external scuto auricularis‡.

Other muscles belonging to the ear, also—the internal scuto§ and temporo auricularis||, situated under the former—form another thin layer.

The fourth plane is constituted by the crotaphite, very strong muscle, filling up all the temporal fossa, attached upon the whole extent of that fossa and upon the coronoid process of the inferior maxillary.

* Attolens anterior.—Percival.

† Attolens maximus.—P.

‡ Anterior conchoe.—P.

§ Posterior conchoe.—P.

|| Attolens posterior.—P.

It is one of the principal means of closing the jaws. Its fibres, covered by a handsome and strong nacreous aponeurosis, do not reach the posterior border of the orbital process of the frontal; they have between them and the bone an empty space, partly filled by a thick adipose cushion, even in the leanest animal, which is easily displaced by the coronoid process during the motions of mastication.

The base of the region is formed by the temporal bone, the parietal and the frontal. These bones are not very thick, and without sinuses.

Blood vessels.—Only arteries of small size are found in that region. They are divisions of the temporal and anterior auricular arteries. The nerves are furnished by the anterior auricular, and the temporal.

Differences.—The temporal region of the *ox* is found altogether upon the side of the head; it looks as if covered by the frontal, and extends backwards to the horn. Well defined in the temporal fossa, this region presents only one small crotaphite muscle; it is not covered by the zygomatico auricularis muscle, which is missing in those animals. In smaller species of animals the region extends a little more forward.

In *carnivorous* it is quite developed, and the size of the muscles which belong to it is so great that the two regions unite together on the median line and form alone nearly the half of the anterior and lateral faces of the head.

The temporal region of the *pig* is also very large. It holds, in dimension, the middle between that of the horse and that of the carnivorous.

SECTION III.—TEMPORO MAXILLARY ARTICULATION.

The importance of that region, and the frequency of its lesions, resulting of the projecting position it occupies upon the sides of the head, induce us to make of it a special region, independent of the surrounding parts with which it holds connections of contiguity only.

The temporo maxillary articulation is recognized outwards by its projection, and specially by the touch, which, by touch, will easily exhibit under the skin all the bony parts of the skeleton which compose it.

The posterior border of the articulation is found about two fingers' breadth in front of the ear, from which it is separated by a hollow, partly filled during the motion of the jaws. Its inferior border rises above the cheek, on the same line as the extremity of the eyebrow; the superior is bounded by the sharp edge of the zygomatic process. With the finger applied upon the region, one can recognize the transversal

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proeminence produced by the inferior condyle. The condyle of the temporal is also easily defined, and between these bony projections is found a hollow—indication of the articular interline. A scalpel pushed through into that line penetrates without difficulty between the two bony surfaces in the thickness of the fibro cartilaginous meniscus. The skin of that region is thin and loose; the hairs are fine and short. It is often covered with excoriations or depilations which may be the result of accident, but which often are in consequence of a long decubitus during serious and painful diseases. Indeed in colics, animals are often seen, while lying down, raising the head and violently throwing it back on the ground, without being conscious of the pain they must necessarily endure in excoriating the prominent parts of the head; it may even happen that the skin, after repeated like motion, is entirely torn away and the capsular ligament is lacerated, giving rise to an open joint, an accident always very serious as it prevents the regular function of the jaws, and interferes much with the feeding of animals which cannot partake of anything but soft liquid food.

The subcutaneous connective tissue is not abundant, it unites in an intimate manner the skin to the thin muscular layer underneath, constituted by the *paniculus carnosus* which unites there with the *zygomatiko auricularis*.

The connective layer situated under these muscles is more important than that which unites them to the skin; it is it which gives rise to the looseness of the skin.

The peripheric ligament of the joint is situated immediately under these layers. Forward, behind and inward it is much less resisting; in this last part, even, it becomes very thin and elastic. The fibres which constitute it are running in different directions. A large *farciculus*, whose direction is oblique, backwards and downwards, deserves our attention. Rising above and outside the temporal condyle, it runs under and a little behind that of the maxillary. Passing over the articular meniscus, the ligament is attached upon its circumference in such a way that there is in reality two articulations—one superior, formed by the temporal condyle and the superior face of the meniscus; the other inferior, constituted by the inferior face of the meniscus and the maxillary condyle. Each of these articulations has a special synovial capsula.

The skeleton of that region shows some interesting peculiarities. The superior articular surface is formed by a condyle and a glenoid cavity; elongated transversally, the condyle is situated in front of the

cavity. The maxillary eminence, transversally extended behind the glenoid cavity, limitates the action of the joint in that direction. The condyle of the maxillary is convex in both axis; the transversal diameter is about the double of the antero-posterior.

As for the meniscus, it is narrower than the articular surface of the temporal. It presents peculiarities of form in relation to the bony surfaces with which it is in contact. Its superior face is slightly convex forward and concave behind; the inferior is concave only. Its thickness is much greater on the borders than on its centre; its fibro cartilaginous structure gives it a sufficient resistance against the pressure of the two articular surfaces, at the same time leaving it a certain flexibility, which in the transversal direction is put into play in some motions of the jaws, during which the form of the superior surface changes slightly to apply itself alternately upon the condyle or in the glenoid cavity of the temporal. There are in that articulation two synovial bursæ separated from each other by the inter articular meniscus. The inferior synovial has the important peculiarity of enveloping all round the condyle of the maxillary, and to be attached at about one centimeter and a half below the articular surface.

The *connexions* of the temporo maxillary joint must be well understood; it is covered in all its posterior face by the parotid gland. Inside the condyle extends as far as the membrane of the guttural pouch; forward the masseter muscle touches the peripheric ligament.

Important *blood vessels* pass at close proximity of that joint. We find behind the external carotid and its two terminal branches; below the articulation, and in a somewhat superficial position, allowing to feel its pulsations, is the subzygomatic artery. One of the branches given by this last artery, the masseterine, passes forward of the neck of the condyle and communicates with the posterior deep temporal by a branch which runs into the sigmoid notch, very near the masseterine nerve; the other, the transversal of the face, remains superficial and is situated between the vein satellite and the facial nerve, which is inferior to it.

The motions of the articulation are very numerous; the opening and closing of the jaws present nothing peculiar. In the propulsive movement, the two condyles come on the same level. In the retro-pulsion, on the contrary, the condyle comes to adapt itself in the glenoid cavity. This motion is limited by the mamillary eminence. In the case of diduction, as during mastication, the relative position of the condyles of the maxillary, as that of the menisci, which are carried with them, is different for each articulation, according the direction of the mastication.

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If we suppose the animal chewing to the left, the extremity of the inferior maxillary is carried on that side. The left condyle will correspond to the glenoid cavity of the temporal, while the right one will be in opposition to the condyle of the same side. It will be easily understood that in this case the axis of the articular surfaces, superior and inferior, cross each other very obliquely. The part of the meniscus is to mould itself upon the articular surfaces, in order to render the coaptation more perfect. If the chewing takes place on the right, the positions will be in an inverse condition.

DIFFERENCES.—On the *ox*, that joint, by virtue of its position posterior to the pre-eminent of the orbite and of the development of the horns, is much less exposed to external injuries than that of the horse. Aside of the peculiar form of the condyle of the maxillary, which is concave from side to side, there is nothing peculiar to mention.

In the *pig* the condyle is triangular, consequently it has the tendency to assume the elongated form of the *gnawers*. In *carnivorous* the condyle is exactly fitted in the glenoid cavity, and in these animals but two motions can take place, the opening and closing of the jaws.

SECTION IV.—REGION OF THE CHEEK.

This region extends from the parotid to the commissure of the lips. It has for basis the masseter and alveolo labialis* muscles ; it is bounded forward by the temporal, orbito palpebral region and that of the chanfrin; behind by all the extent of the posterior border of the branch of the maxillary.

A.—MASSETERINE REGION.

It is separated from the alveolo-labial region by the anterior border of the masseter ; it is flat or slightly convex. It presents five layers.

The skin is thin and loose, covered with fine short hairs. The *subcutaneous cellular tissue*, more abundant in low bred animals, is never much developed ; it is never loaded with fat.

The panniculus carnosus is spread under the skin over the whole region. It is thin, and even very often its fibres are isolated and united together only by the subcutaneous connective tissue. On its internal face are found some arteriols and the ramifications of the facial nerve.

The masseter muscle, which gives its name to the region and occupies all its extent, is very thick, formed of slightly radiating fibres which rise from the zygomatic crest and are attached upon the pos-

* *Buccinator* of Percival.

terior border of the maxillary bone. A part of the deep fibres of the muscle, specially those which are in front of the temporo maxillary articulation, have a direction transversal to that of the fibres of the superficial layer. A beautiful nacreous aponeurosis which looses itself at two or three centimetres of the moveable insertion, covers the muscle and has its greatest thickness near the maxillary crest.

We may also mention in the enumerations of these layers the portion of the alveolo labialis* muscle which runs up backward to the last molar tooth. This muscle is run on each side by the two molar glands, the superior is in connexion with the masseter, the inferior is immediately situated between the inferior border of the muscle and the mucous membrane of the cheek.

The skeleton of the region is formed by the inferior maxillary, the superior maxillary, the malar bone, and a portion of the temporal. The inferior border of the masseterine region corresponds to the space which separates the fourth from the fifth molar. The two lamellæ of the inferior maxillary are more or less separated from each other, according to the age of the animal. Below the teeth runs the maxillo dental canal, where the inferior maxillary and artery of the same name are lodged. The opening by which the nerve enters the bone is hollowed in the internal laminae about 16 centimetres below the condyle of the maxillary.

The superior maxillary nerve passes above the roots of the superior molar and makes its exit by the sub-orbital foramen, as we have said it in speaking of the chanfrin.

Blood-vessels.—Below the condyle of the maxillary, between the cutaneous muscle and the masseter, we find the temporal trunk with its vein satellite, and the facial nerve. The artery is so superficial that its pulsations are easily felt. It divides into two branches—the transversal artery of the face, running along the zygomatic crest, and deeping into the thickness of the masseter, and the masseterine artery. The maxillo muscular artery penetrates also in the masseter muscles, towards the middle of its posterior border; it deeps immediately in the fibres of the muscle running towards its inferior attachment.

The *veins* are satellite of the arteries, but we find, beside, in that region, first, the alveolar vein, situated in a deep position, between the masseter and the superior maxillary bone, and running along the molar gland. This vessel is an enormous canal of communication thrown between the external maxillary on one side and the cavernous sinus

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which it joins after running through the ocular sheath; second, the buccal vein, origin of the internal maxillary, which follows the inferior border of the alveolo labialis, in front of the curved portion of the anterior border of the maxillary, between the last molar and the base of the coronoid process the alveolar vein and the buccal have such a diameter that their borders touch each other; third, two large branches establish also a communication between the maxillo muscular and the buccal, and the temporal. These two anastomoses, as well as the buccal, are immediately resting on the maxillary.

Nerves.—Aside the inferior maxillary nerve we find the facial, which makes its exit under the parotid with the temporal artery and veins. At this spot the facial has already made its union with the temporal trunk; it constitutes the subzygomatic plexus, which radiates from that point to the antero inferior angle of the muscle. Its branches are then very numerous. Three or four are more principally noticed; one, the most anterior, mixes with the divisions of the superior maxillary nerve; another goes to join the inferior coronary artery.

B. ALVEOLO LABIAL REGION.

Not as wide as the preceding, this region is limited forward by the line of insertion of the fibres of the alveolo labialis; below, by the commissure of the lips; behind, by the posterior border of the maxillary; above, by the masseter muscle.

Convex in the portion corresponding to the alveolo-labialis muscle, it presents a median fissure which defines the separation of the superior and inferior molar teeth. To the posterior border of the projection formed by the alveolo labialis, we notice that of the maxillo labialis muscle*, under which pass the inferior coronary artery and vein.

Under the thin and loose skin the cutaneous muscle mixes up its fibres with those of the superficial muscles of the region. These are, in front, the pyramidalis nasi, a little more behind the zygomaticus, yet more backwards a portion of the facial cutaneous, called in human anatomy the *Risorius of Santorini*.

The third layer is formed by the buccinator, at the inferior border of which is found the maxillo labialis. It is to be noticed that the alveolo labialis is formed of two series of fibres which start from a median raphe, and which give the muscle a penniform aspect. We will place also in this third layer the extremity of the inferior and superior molar glands. The organs of this layer are immediately resting on the buccal mucous membrane.

* *Depressor labii inferioris* of Percival.

Blood Vessels and Nerves.—Altogether upon the limit of that region and of the masseterine, in front of the so well marked border of the masseter, the *glosso facial vein* and artery are found, the vein always situated behind the artery. The branches given off by the artery are the superior and inferior coronary going to the lips. These vessels are always accompanied by large veins, often double, sometimes triple in number. A similar arrangement exists for the inferior coronary.

The duct of Stenon by its termination belongs also to that region. It is situated behind the blood vessels, often concealed by them and by the anterior border of masseter which covers it partly.

On the level of the middle portion of the buccinator, it crosses inwards the external maxillary vein and artery to run forward, deepening through the fibres of the muscle to open in the mouth on a level with the third superior molar.

The nerves are furnished by the facial. They ramify in the different muscles of the region and those of the lips and of the nose. The position of its numerous branches thrown as a bridge over the facial blood vessels, is difficult to indicate minutely. We will mention only a large branch which accompanies always the inferior coronary.

[TO BE CONTINUED.]

PORABLE FOOD FOR HORSES.

The *Journal de St. Pétersbourg* furnishes the following details regarding the preserved food for horses, prepared in the event of scarcity of oats, or in case the transport of the food as used at present should prove too difficult. This food is composed of pounded oats and gray pea flour, mixed with hemp-seed oil and salt. The paste obtained by this mixture is then cut up into thick cakes of about four inches in diameter, pierced with small holes to assist the soaking in water. On being taken from the oven these cakes are strung upon wires, so that each wire holds the daily ration for a horse. Each ration, of the weight of four pounds, is equal in nutriment to ten pounds of oats. It is stated that the horses are extremely fond of these cakes, whether soaked in water or quite dry; and although, when fed exclusively on these cakes, they become thinner in appearance, they do not lose any of their strength, though hard worked.—*Medical Record.*

EDITORIAL.

VETERINARY EDUCATION.

When in our last number of the REVIEW we presented our suggestions to the Hon. Acting Commissioner of Agriculture concerning the propriety of applying to Congress for an appropriation for a governmental Veterinary Institute in Washington or some large city, where practical as well as theoretical advantages would be found, we were not aware that the same advice was given by other Veterinarians. The November number of the *Country Gentleman* contained from Prof. James Law a long article terminating with the same proposition, a portion of which we reprint to-day with the permission of the author. After some lengthy remarks upon the attempts made in Boston and Philadelphia, Professor Law alludes to similar ones made by other members of the profession in a sharp, severe, but truthful manner, and then giving the requisite for a Veterinary School, he closes up by pointing out, as we did, the necessity for action on the part of the general government.

Having been engaged in the teaching of veterinary medicine in Cornell University since its opening, Professor Law acknowledges the errors of such doing and, as in everything, he does it in the manly manner of one who fully realizes the injury done by such work—and he will give us credit for being the first to have pointed out to him the result of that form of teaching. No, agricultural students cannot receive in an agricultural school the education that good veterinarians ought to have, and good as the efforts of the teachers may have been, the result cannot but be the same, viz.: the turning out of so many men scarcely better than empirics. In our estimation veterinary chairs in agricultural schools ought not, cannot cover the whole curriculum of medical studies required for a veterinarian. Zootechny may be taught there, some common, general rules of practice may be lectured upon, but that is all—and it is very gratifying to us to see Professor J. Law take the standard he has assumed in his letter to the *Country Gentleman*.

Still we fear that his call to governmental assistance, like ours, will receive but little attention, and with that prospect in view, we take this opportunity to make another suggestion with hope that it may find better appreciation.

Some time ago a rumor found its way to the papers that the Board of Trustees of Cornell University were considering the propriety of establishing a medical department in the City of New York—to open a

medical College. Have we not enough of them, not only in New York but all over the country? Is not the medical profession already sufficiently crowded? Every one who has some knowledge of the standing of the human medical profession will agree that there is no more need for medical Colleges, and if we are correct in this statement, we would suggest that the Board of Trustees of Cornell University creates in New York a veterinary department of their own. New York offers facilities for such an undertaking surpassed by no other city in the Union, and the success which has attended the establishment of Veterinary schools in that metropolis tells enough of the certainty of success when started under the auspices of Cornell University. A school of that kind will do away with personal undertaking. Sincere and earnest as they may have been, they could, they would never compete with an establishment as that corporation could start; and one amongst all we will say that though it might be considered as likely to interfere with the work in which we have been so seriously engaged in our own sphere for a number of years, we would gladly exert in behalf of the new school all our efforts, and help it on the road to success; we have worked hard to elevate veterinary medicine in America, we have the firm conviction that our work has done some good, but let us have something which would show better prospect for the education of veterinarians and we will, without hesitation or *arrière pensée*, make room for the new start, the Veterinary Department of Cornell University.

"RESPECTABLE PROFESSIONAL STANDING.

"There are few, if any, who can afford to be entirely independent of the opinion of their associates. A medical man may declare his freedom by acting as an individual rather than a part of a great and influential community; but he does so often at the risk of losing his influence, not only as a medical man, but as a member of a learned profession. We confess that we intend these remarks to bear upon the necessity of belonging to medical organizations, or in some way identifying oneself with professional interests generally. Although this is a fact which is not so well appreciated in medical circles as it should be, we now and then have an illustration of its importance. Especially is this the case when a medical man appears as a witness. Here, in order to give his testimony its full force, he has to prove to the jury his capability to testify not only by his education and qualifications, but his affiliation with his profession. In a recent instance of this sort, a medical gentleman of this city, who openly boasted that he did not care to become a

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member of any medical society, was severely handled by the attorney of the opposite side, who made it appear to the jury that the gentleman in question was not regular, and that his testimony should be taken with that allowance given to all suspicious witnesses. The result was what might have been anticipated. There is no argument even in a court of law against respectable connection and high standing in the profession, while a suspicion of the contrary is always a handle for an adversary. The moral of all of which is, that it is safer to be respectable, even if it does incur the necessity of belonging to some recognized medical organization."

This we extract from that most excellent paper, the *Medical Record*, and the weight of this editorial cannot escape the attention of our veterinarians. There is in it an amount of truth which will not escape notice, and we feel that some of our colleagues will appreciate the value of the advice it gives. Veterinary societies are few in the United States, but we consider the duty of every member of the profession to belong to them—not a duty to himself, but to veterinary medicine, to which he belongs. The question is not whether he cares or not; nor whether or no his professional standing and connection will not suffer from his ignoring respectable bodies composed of the majority of well recognized practitioners; but in the condition where veterinary medicine is as yet in the United States, we hold that every Veterinarian, no matter where his professional position places him, ought to work for the benefit and elevation of the profession; and where can he better do it than in the centre of a scientific society?

ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The graduates of the American Veterinary College took opportunity of the meeting of the United States Veterinary Medical Association, where many of them were present, to organize an Alumni Association. Original students of the American Veterinary College and graduates of a then defunct institution—all students of the same faculty—came together and formed that association, which, we have no doubt, is called to become one of the most respectable bodies of the veterinary profession in America. The fact that the members of that alumni were graduates of the same faculty, though under different schools, gives a satisfactory proof that a college does not consist in a name, or in a building, but of the faculty of the body represented by those whose en-

ergy, work and teachings have made of a former student a trustworthy member of a profession.

Graduates of the same school, members of the United States Veterinary Medical Association to which you belong, your alma mater, the American Veterinary College, may feel proud of your professional conduct, and wish you success in your new undertaking.

VETERINARY APPOINTMENT.

The *Scientific Farmer*, of Boston, gives us the announcement that our friend Charles P. Lyman, V. S. E., of Springfield, Mass., has been engaged to lecture on veterinary matters to the Massachusetts Agricultural College. We sincerely congratulate the Doctor on his appointment; so much so that we understand that his course of lectures will be only on "such portions of veterinary science and practice as will be of special value to the students as prospective owners of live stock." We feel certain that he will do justice to his subject, and will take advantage of the experience laid before him by the article of Prof. Law, in limiting his subject to general common rules of practice in those cases where veterinary assistance is little needed, or, in cases of emergency, to wait until the arrival of the proper attendant.

VETERINARY INSTRUCTION.

Editor Country Gentleman:

* * * * *

It may be justly claimed that these colleges of Boston and Philadelphia were managed by mere pretenders and adventurers, while no graduates of any reputable veterinary college have ever fallen so low. But this is healing the wound altogether too slightly; the source of the trouble lies much deeper.* *All regular graduates of veterinary medicine are not immaculate, and the veterinary profession cannot close its doors effectually against every hypocritical scoundrel who sees in its degree a stepping stone to the acquisition of filthy lucre. Even the regular graduates of the veterinary colleges are found among us laying claim to titles to which they have no right, and acting altogether in the most unprofessional manner.*

The source of danger in the schools in question lay in their private and irresponsible character. Let it be possible for private individuals to obtain a charter authorizing them to grant degrees, without fear of

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strict supervision as to the modes, and there will soon be found plenty of unscrupulous men who will seek to work such a machine for their own personal aggrandizement. This is the rock on which the two schools in question have split, and this it is that should be jealously guarded in chartering any new veterinary college.

REQUISITES IN A VETERINARY SCHOOL.

A veterinary college requires a body of trustees whose position shall be a guarantee of good faith, such an oversight in fact as is now given to our best State agricultural colleges. It requires a faculty whose attainments are guaranteed not only by public confidence, but by the possession of a degree of one of the best existing veterinary colleges, and if possible by repute for original investigation. It requires that all candidates for admission shall submit to an entrance examination to test their possession of an education sufficient to enable them to pursue their professional studies to advantage. It requires that a very full course of study shall be pursued within its walls before a candidate can present himself for examination in order to the obtaining of a degree. It requires that degrees shall only be awarded after a satisfactory examination at a designated time and place, by a board of examiners apart from the faculty of the college. It requires, finally, a sufficient endowment, so that it may be fully furnished with all the necessary appliances for rendering the instruction lucid and thorough, and to guard against the constant temptation in medical schools to crowd in numbers, irrespective of fitness, and to graduate them at the earliest possible moment, in order to increase the salaries of the teachers.

The establishing of such an institution would very fitly come from the central government. By the land scrip grants every State has been supplied with the means of carrying on an agricultural and mechanical college, but in the midst of all this, the vast interests that centre in our live stock and their diseases have been almost entirely ignored. No country in Europe, excepting Russia, at all approaches us in the number of its live stock, and yet no civilized land so utterly ignores the need of veterinary care. The following table, giving the numbers of the four principal classes of live stock in the United States, and in two of the foremost countries of Europe, will illustrate this :

	Horses and mules.	Cattle.	Sheep.	Swine.
United States, 1875.....	11,149,800	27,870,700	35,935,300	25,726,800
Prussia, 1867.....	2,313,817	7,996,818	22,262,087	4,875,114
" 1877.....	3,352,231			
Great Britain and Ireland, 1874....	2,226,739	6,115,491	30,313,941	2,422,832
" 1877....	2,790,851			

It will be seen that we bear the palm for numbers of all kinds of live stock. In sheep alone do they approach us, though even there they leave us a magnificent lead. In all others we exceed them by three, four, and even five times. What, then, are the relative precautions that we have adopted for the preservation of this splendid array of wealth? Prussia, with a little over a third of our live stock, has five veterinary colleges—at Berlin, Stuttgart, Dresden, Hanover and Munich—maintained at State expense, and furnished with ample subjects and pecuniary assistance for experimental investigation when judged necessary. England, with less than half our live stock, has four veterinary colleges—one in London, two in Edinburgh, and one in Glasgow—all independent of government aid, being either simple personal ventures, assisted by agricultural societies, or, as in the case of the old Edinburgh College, sustained by private endowment. One effect of this divorce of State and veterinary colleges may be seen in the result of the recent outbreak of rinderpest, which, in Prussia, was promptly extinguished within a week, whereas in England it smouldered for months before a committee of the House of Commons had time to fully consider what ought to be done. In the former outbreak of 1865, for which England was still less prepared, the disease was allowed to increase for six months, and its victims already amounted to 17,000 head per week before efficient measures for its extinction could be inaugurated. On that occasion England lost over \$40,000,000 in the space of eighteen months.

GOVERNMENT ACTION NEEDED.

Some power ought to be vested in the central government, and the power of taking measures to exclude and extinguish animal plagues is one of them. As well appoint a commission to deliberate as to whether the striking of matches in a powder magazine should be permitted to continue, or take a vote of the passengers as to whether the engine should be reversed and the brakes applied when the danger signal is already shining ahead, as wait for Congressional deliberation when a deadly animal plague is suddenly brought into our midst. But the Government, as such, is not acquainted with the nature of the danger, or the best methods of averting it, and hence the great value of a State Veterinary College, which can advise and direct in such a matter.

The veriest fraction of the \$20,000,000 lost last year by hog cholera would have sufficiently and permanently endowed a veterinary college and experiment station, which would have paid the country a thousand times over in substantial results. In making any such movement, the

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great thing to be guarded against is the squandering of resources. Many conceive that the end is sufficiently gained by the establishing of a veterinary chair in each State Agricultural College. A recent writer in the Philadelphia *Press*, after justly exposing the dangers of private veterinary schools, and calling attention to the need of sound veterinary education, concludes by asking Government "to establish a professorship at West Point, and educate a class of veterinarians, one of whom shall be attached to each regiment of cavalry." Why not also endow a medical professorship at West Point to furnish physicians for the army? Surely, if the medicine and surgery of half a dozen different genera of animals can be taught successfully by a single professor, that of one—the genus homo—may be with equal success. To state the proposition is to show its absurdity. The veterinary student must go over similar ground in every respect with the medical student, but he must go over this in its application to solipeds, ruminants, swine, rodents, carnivorous and land and water birds, and yet, while the medical school boasts its ten to twenty chairs, the veterinary must be satisfied with one solitary professorship, attached to an agricultural or military institution! The veterinary teacher may feel complimented by this estimate of his power, but few would care to undertake the load of responsibility thrown upon him.

If the Government can undertake the establishing of a veterinary college, with a sufficiently extended curriculum to make it worthy of the name, it will prove an excellent investment if properly officered and furnished; but no such good can ever be expected from the endowment of fifty separate professorships, each in a different institution, and each expected to turn out veterinarians. This would be the most efficient way to make the teaching superficial and imperfect, and to destroy the very possibility of observation, experiment and progress. Let us, if we can, have a national veterinary college, but do not let us squander our means on a host of isolated chairs, which can never fill the existing void, and the creation of which will only postpone indefinitely that concentrated and efficient work by which the permanent protection of our live stock may be the better assured.

Cornell University.

JAMES LAW.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The above Association held its regular fortnightly meeting in the lecture room of the College, Union Avenue, on Thursday evening, November 8, Professor McEachran in the chair.

After the usual routine of business, the President referred to the large and handsome additions that have been recently made to the library—some sixty volumes, comprising many of the standard works on Physiology, Anatomy, Pathology, etc., etc.

Votes of thanks were then tendered the President, Professor Osler and Mr. C. J. Alloway, for their donations to the library.

Mr. J. A. Couture, V. S., was then called upon to read his communication of a case of extensive sloughing of the skin and muscles on the thigh of a horse, which was followed by an animated discussion. The event of the evening was the reading of a paper on "The So-called Hog Cholera, or Typhoid Fever in Pigs," by Prof. Wm. Osler, Vice-President of the Association. The lecturer in the course of his remarks went on to show the great importance of the subject under discussion to the agriculturist, as stock raisers in the United States suffered a loss in hogs of \$20,000,000 annually, principally in Ohio and Illinois; neither is the disease unknown in this country, as during the past season a well known agriculturist near Quebec has had his herd decimated by its ravages.

The doctor also spoke of a number of experiments conducted by him at the Veterinary College here, in which the disease was produced in five subjects from different methods of inoculation, and minutely described the symptoms and post-mortem lesions in each. He showed the infectious nature of the disease, and urged the importance of strict enforcement of sanitary laws.

Professor Osler intimated, however, that the paper was only preliminary. He had made extensive notes of all the cases, and of a large number of post-mortem examinations made at Quebec. Specimens were preserved at the College Museum, and drawings of post-mortem appearances were being prepared (a beautiful specimen of which was exhibited), and it was intended that an exhaustive paper on the subject should shortly be presented to the profession.

The President remarked that the disease was discovered in two pigs lately imported, and fortunately detained at the Quarantine. Professor Cressy also gave his experience in this disease which, being somewhat extensive, was listened to with considerable interest.

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ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

A meeting of the graduates of the American Veterinary College was held in the Ashland House, corner of Fourth Avenue and Twenty-fourth Street, New York City, on the evening of September 18th, 1877, for the purpose of organizing an Alumni Association of that institution. The meeting was called to order by A. A. Holcombe, N. Y., and its objects tersely stated. Upon motion, Dr. J. L. Robertson, N. Y., was elected Chairman, and C. B. Michener, Carversville, Pa., Secretary. Eleven gentlemen were present : J. L. Robertson, M. D. V. S., N. Y.; C. B. Michener, Carversville, Pa.; E. Traver, Rhinebeck, N. Y.; J. B. Cosgrove, Worcester, Mass.; J. D. Hopkins, N. Y.; J. S. Saunders, Boston, Mass.; A. A. Holcombe, N. Y.; J. C. Corlies, Newark, N. J.; C. H. Hall, New Bedford, Mass.; W. J. Coates, N. Y., and G. P. Pennington, Worcester, Mass. Upon motion of A. A. Holcombe, seconded by J. B. Cosgrove, the Chair appointed A. A. Holcombe, E. Travers and J. C. Corlies, a committee to draft a Constitution and By-Laws, and report the same at the first annual meeting of the Association to be called at the close of the next session of the American Veterinary College in February, 1878. The Secretary was instructed to inform all the absent graduates of the measures taken to effect the organization of the Association. Upon motion of J. B. Cosgrove, the meeting adjourned.

C. B. MICHENER, *Secretary.*

ROCHESTER VETERINARY MEDICAL ASSOCIATION.

TO THE EDITOR OF THE VETERINARY REVIEW :

SIR : The veterinarians of Rochester, N. Y., assembled together on Saturday evening, October 27th, and organized themselves into a society to be called the Rochester Veterinary Medical Association.

The object of the Association to be the cultivation of fraternal feelings among veterinary practitioners to contribute to the diffusion of sanitary science; the elevation of veterinary science to an equal rank with other scientific branches of medicine; the mutual improvement of its members by the presentation of such cases of diseases, together with their treatment and termination, as may come under the notice of any member, which may be deemed of sufficient interest to bring before the Association.

Also, the drawing up a veterinary tariff, or bill of fees, to be adopted by its members.

J. C. MCKENZIE, *Secretary.*

REPORT OF CASES.

RABIES.—By W. BRYDEN, V. S.

On the 25th inst. I was called to East Weymouth, Mass., to a case of rabies. The subject was a white horse, 25 years of age, belonging to J. H. Clapp, Esq., a prominent shoe manufacturer. The history of the case, as near as I could learn, was as follows:

About three (3) months ago a dog ran into Mr. Clapp's grounds, bit one of his—a fine large Newfoundland—then left, and was found next day drowned in a pond near by. The owner of the animal said he had been poisoned. About six (6) days after this, Mr. Clapp's dog showed symptoms of illness, and was tethered in an open shed, where he soon became cross and snappish, gnawing tin dishes, or whatever was placed within his reach. While in this condition, the old pet horse walked into the shed, and was instantly seized by the nose and bitten very badly. The dog was then shot. This was about nine (9) weeks ago.

The horse's wounds soon healed, and little more was thought of the matter. On the 23d current he was driven to a trotting park in the vicinity, and on their return home had several short races with other horses, in which it was remarked that he trotted as well as in his younger days.

Next morning, the 24th, in answer to inquiries about the horses, Mr. Clapp was informed by his colored man, that "Belle"—who had won a race the day before—is all right, but "Old Maj." is wrong, wouldn't let me wipe his nose off, and don't drink worth a cent. But little was thought of this; he was harnessed and driven to the depot, about three (3) miles, and there put up in a stable to await the return of his owner from Boston in the afternoon. On the way home, it was remarked that "Old Maj." was feeling remarkably well, and like a trotter, but that he kept twitching his head as if a wasp was trying to light on his nose. On reaching home, he did not care for either food or drink, and was placed in a box stall, when he soon became restless, pawing and sweating, at times swinging his head in a circle near the ground, at others retracting his lips and twitching back his head, then opening his mouth and closing it slowly. These symptoms had been gradually increasing in severity up to the time of my arrival, about 4 o'clock P. M. of the 25th.

I found him standing in the middle of a strong roomy box stall, swinging his head wildly in a circle near the floor, lips retracted, ex-

posing the teeth, and a peculiar, bright red mucous membrane ; his eyes looked wild and drawn together, the ears passive, the neck and limbs seemed to be free from spasm, but the body appeared somewhat rigid, and the tail stuck straight out, and was in a constant tremble ; he was bathed in perspiration, his breathing quick and loud, and a short hard cough troubled him every two or three minutes ; he occasionally lifted the near hind leg and struck out against the wall, not viciously—indeed, none of his acts appeared vicious—but the result of intense pain and suffering. I pronounced the case Rabies, and advised his destruction, which was immediately carried out. No post-mortem examination was made.

FRACTURE OF MALAR BONE—TETANUS—RECOVERY.

By L. V. PLAGEMAN, M. R. C. V. S. L.

BROOKLYN, Nov. 2, 1877.

Having recently met with a remarkable case of tetanus, I thought I would furnish its history for the next number of the VETERINARY REVIEW.

The subject was an aged gray mare which got injured by a team of runaway horses attached to a coach, and no driver with them. She was standing in front of a butcher's store, on the street, hitched to a wagon, when the team of horses at top speed struck the mare with such force in her chest that she was thrown off her front feet. She then fell and broke one of the shafts. She was taken out and I was sent for. I was away from my office at the time, but saw her two or three hours later. I found her with a few contused and lacerated wounds about her chest and limbs, and a fracture of the malar bone on near side, which was very trifling, however. She had tetanus, and I had her sent to my infirmary, a distance of about four blocks. I had her placed in a dark stall, where she was kept perfectly quiet; had the wounds bathed with warm water and dressed with a little tincture of aloes ; gave her ozijj chloral hydrate in half a pail of water, which she drank, and blanketed her. From that day to the time of her discharge I never gave any more medicine. She was discharged on the thirteenth day after the occurrence, and this is the twenty-first day. Yesterday she was put to light work for the first time, and is doing well, though a little stiffness still remains. Was tetanus produced by the shock ?

[It seems to us doubtful that the attack of tetanus (?) be as sudden as recorded in this case, though we know of a circumstance in a mare, very high tempered, which had an attack of tetanus from merely nervous ex-

citement while being driven with shoes to which she was not accustomed; but the symptoms did not show themselves for about five days after. In her case the symptoms lasted some six weeks, and the short duration of the case above recorded would make it doubtful to us of its being a case of *idiopathic tetanus*.]

URETHRAL CALCULI.

By J. T. DUNCAN, V. S., Goderich.

Some time ago a farmer from a distance requested me to see a horse of his which had passed very little water for more than thirty-six hours, in spite of the administration of liberal doses of "saltpetre" and "sweet nitre."

On my arrival, I found the patient exceedingly uneasy, abdomen evidently distended, the urethra prominent and full along its visible course, and an occasional drop of urine escaping from it. It was plainly a case of urethral obstruction, and I prepared at once to pass the catheter, as, from the condition of the patient, rupture of the bladder might occur at any moment. On attempting to do so, however, I found, firmly fixed in the urethral tube, and almost completely blocking it, a large, hard, smooth calculus. As it was low down, I attempted to extricate it by means of the forceps, but, from its great size and hardness, it could neither be removed whole nor reduced in size. The knife was the only other alternative, and as no time was to be lost, I determined to operate with the patient standing. By two careful incisions in the urethral tube, the calculus was removed, and with it escaped the urinal contents of the urethra. Immediate relief was apparent, but the bladder, having become paralyzed from over distention, it was necessary to evacuate the viscus by means of the catheter. The horse made an excellent recovery.

In regard to the calculus itself, the patient unfortunately stepped on and injured it. The remainder, however, which shows clearly the great size of the concretion originally, has been presented to the museum of the Ontario Veterinary College.

This case forms an excellent commentary on the use, or rather the abuse, of diuretics by non-professional gentleman.

It also clearly shows the importance of operating in such a case with the patient standing. Had he been cast, the bladder would almost inevitably have been ruptured. This is but the second case of urethral calculus occurring in a practice of seven years, the other being that of a ram. In this case the calculus was exceedingly small, was discovered in

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the vermiciform appendix, and removed; unfortunately, rupture of the bladder had already taken place. This specimen I also presented to the Ontario College.

TYMPANITIS TREATED BY PUNCTURE.

By C. H. PEABODY, D. V. S.

The three cases reported below were quite interesting to me, and hoping they may be so to some of the readers of the REVIEW, I beg to report them.

CASE NO. 1.

On the 18th of July last, at about 2.30, p.m., I was called to see a sorrel mare which had been suffering from flatulent colics since 8 o'clock that A. M.

On inquiry found the animal had received two (2) drenches which were composed of red pepper, gin, laudanum, ether, aloes, saleratus, and turpentine, which had been given warm and, as the animal would not swallow it, had been administered by pouring it through the nose.

When I saw the animal she was standing with head extended, nostrils dilated, respiration quick, and was distended at the flanks, as full and hard as it could be; the anus was protruding. I concluded to puncture at once. Choosing the right flank about half way between the external angle of the ilium and last rib, and about one and a half inch below the transverse processes of the lumbar vertebræ, plunging the trocar and canula through in an oblique direction inward and downward. I withdrew the trocar, allowing the gas to escape for about three or four minutes, and then it stopped.

I then removed the canula, the animal seemed to be easier; still, she soon laid down again, rolled on to her side, and in a few minutes death closed the scene.

CASE NO. 2.

September 10, 4.30 A. M.—Was called to see a bay mare, 6 years old. Found out, on my way to the stable, that the animal had been sick all night, and treated by a blacksmith.

I found her in about the same condition as No. 1. She had received three drenches of laudanum and ether with linseed oil, and half a pound of the sulphate of soda, besides a dozen or more injections of soap and water.

Without giving any internal medicine, I at once punctured (as in Case No. 1). The gas escaped for nearly four minutes. She became

easier, and passed quite a lot of flatus and feces, and then began to pick at the hay. The pulse was 60 and weak. She seemed so exhausted that I gave her a ball composed of ammo. carb. dr ii, gum camph. dr i, radon genti dr i, and left one to be given in the afternoon, with light feed. On September 11, I saw her and entirely well; no swelling at place of puncture; pulse, respiration and temperature all normal. On the 18th she resumed her work, and has been well since.

CASE NO. 3.

October 9.—Was a sorrel gelding, 6 years old. I saw him half an hour after he first showed any signs of uneasiness. I found him lying on his back with legs turned upwards, and staying in this position for five minutes at a time. When up, the flanks are found somewhat swollen, though not excessively. He would extend his head and neck forward, stick out his nose, and then, throwing his whole body backward without moving his feet, he would allow gas to escape, through the mouth, of a very sour and offensive odor. The animal did not show real pain, but was very uneasy, and if it was allowed to lie down would get in the position before described. I gave a ball of chlorate of lime, dr iv, mixed in some bread. It seemed to relieve him, and he stopped his retching. In about twenty minutes I gave a drench of laudanum, sulph. ether aa oz iss, aromatic spirits ammonia oz i, pulv. Barb. aloes dr iv, linseed oil oz iv. After watching two hours and finding him easier, without the swelling at the flanks, and apparently perfectly well, I went home, leaving orders not to have him fed in the morning until I saw him.

October 10, 5.15 A. M.—The watchman came over and called me, saying he thought the sorrel colt would die, as he was all swollen up and struggling violently. When I got to the stable I found him with the flanks distended, respiration labored, covered with a cold sweat, extremities cold, and standing with his legs well braced as though he was afraid of falling. My first impression was that he was suffocating, so I punctured at once, as before in Cases 1 and 2, the animal not moving. The gas escaped well for several minutes. I then removed the canula and allowed the animal to move around; he was much easier.

His pulse was then 60, and weak; temperature, $103\frac{1}{2}$; respiration, 24. Having nothing handy but some rhum, I gave him a pint of it. At 8 A. M. the pulse was 48; temperature, $101\frac{1}{2}$; respiration, 16. He was fed light, and showed no further signs of trouble until the 15th, when my attention was called to an enlargement on his side. On looking at it I found what proved to be an abscess. I opened it and allowed

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to escape about four ounces of thick and greenish pus. I washed the cavity with carbolic solution. It discharged for a few days, but I kept it clean, and being a superficial abscess the discharge soon stopped and the cavity healed up. Now the animal is, as far as I can see, as well as ever.

CORRESPONDENCE.

VETERINARY EDUCATION.

EDITOR VETERINARY REVIEW :

DEAR SIR : I was not very much surprised to see the letter of Mr. Coleman in one of the last issues. Knowing that Professor Smith had been on a visit to Ottawa, and that he had expressed himself to some friends as being engaged in collecting material to refute my statements concerning his school; but, lo ! the mountain has conceived, and brought forth a tiny little mouse.

Mr. Coleman says he received a reply "without a single allusion to the point at issue," and charges me with "want of courtesy." Here is the reply :

"DEAR COLEMAN : I am out for the first time for a fortnight, having sustained a severe injury to my knee from my horse falling on my leg. * * * I received your letter in bed, or would have answered it sooner. You entirely mistake my meaning—the reflection is on the curriculum, not on the students. I think that is clear enough. You of course understand that it is a disagreeable task I have undertaken; but Mr. Smith has brought it on himself, why should he not have made some effort to meet the views of the profession? Why persist in a course which no person having the interests of the profession at heart can endorse? My remarks are calculated not to injure his school, but to better it, and no one would be more sorry than myself to injure him. We have long been friends. We should be friends, and if we are not, it certainly is not my fault. * * * * Hoping that I may continue to count on your *continued assistance*, in doing what I know is our duty to ourselves, and those whose positions are influenced by what we do."

With regard to the second letter, if it ever reached me, it was when in bed, to which I had to return, and probably was forgotten or mislaid, as I have no recollection of receiving any second letter requiring a reply. For this oversight, of course, I gladly apologize. It may be necessary to explain my reason for making use of a conversational com-

D. McEACHRAN.

munication. Had Mr. Coleman not on many occasions, without reserve commented freely on the shortness and incompleteness of the course at Toronto, and as repeatedly pledged himself to support me in bringing about the necessary reforms (which I have reason to believe he honestly did), and had I not given him credit for independence of character, I certainly would not have risked invoking the wrath of Mr. Smith on his devoted head.

With regard to other two letters by Mr. Stalker and Mr. Duncan when it is known that the former I have never met, and the latter I know only by giving him (like many more of the Ontario graduates,) advice on difficult cases, the value of their remarks on the relations of Mr. Smith and myself fifteen years ago, and the charge of ingratitude on my part, will be appreciated.

I have much pleasure in receiving more than one letter of thanks from friends of the profession in Ontario for improvements which are already apparent at Toronto. Hoping they may continue to progress in the right direction, and that their object may in future be progress, as well as profit.

Yours faithfully,

D. McEACHRAN, F. R. C. V. S.

Montreal Veterinary College, Oct. 18, 1877.

GRADUATES OF MONTREAL VETERINARY COLLEGE PRACTISING IN THE UNITED STATES.

Williamson Bryden.....	Boston.....	1870
A. H. Baker.....	Chicago, Ill.....	1875
Oliver C. Farley.....	(Chelsea) Boston.....	1876
Jedde C. Fogg.....	Boston.....	1876
John C. Mulloy.....	Boston.....	1876
James R. McLaughlin.....	Watertown, Mass.....	1877
William A. Murphy.....	Boston.....	1877
John F. Ryan.....	Chicago, Ill.....	1877
C. C. Lyford.....	Roscoe, Ill.....	1877
Dillon S. Brown.....	Genoa, Ill.....	1877